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Nutritional Status of Children

IX. Feeding Practices in Child-Caring Agencies: A Cottage-Plan Home[1]

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MORE than 250,000 children in the United States go to bed each night in the dormitories of child-care institutions (1)." Referring to these children, all under nineteen, Hopkirk (1) estimates that about 150,000 are dependent and neglected, about 40,000 are delinquents, and at least 60,000 are exceptional children institutionalized because of physical handicaps, feeble-mindedness, or epilepsy. Probably more than 120,000 other children are being cared for in foster family homes, which, barring placement with relatives, is the alternative to institutional care. In the 1933 census (1), reports were made by 2280 public and private institutions and foster family agencies of all sizes, including town, county, and state departments of welfare, divided approximately into 1600 caring for dependent and neglected children and 680 responsible for the physically handicapped, feeble-minded, and delinquent.

At the 1940 census there were 45 million children under nineteen in this country, so it is safe to assume that now, a decade later, during which time both the birth rate and the number of broken homes have greatly increased, probably more than a quarter of a million children must conform to patterns of living established by institutions or foster homes. These children may be subjected to physical, emotional, and environmental conditions which vary from deplorable to excellent, for the adults in charge are not always trained nor financially able to supply the guidance and physical needs for the best welfare of the child.

Because many children enter child-caring agencies and foster homes in a malnourished or undernourished condition, every effort must be made at once to provide an environment suitable for nutritional conditioning and in many cases reconditioning. Sometimes their bodies have adapted to low, unsafe levels of food intake over a period of years, occasionally, since or even prior to birth. Such children may very probably require quantities of nutrients in excess of those recommended by the Food and Nutrition Board of the National Research Council as optimum for the normal child. The usual high requirements for growth are often increased by the added nutritional demands of adolescence. In preparation for a happy, productive adulthood, opportunities for the development of sound health and a well-ordered life should be the right of these unfortunate, dependent children. Since food is one of the first needs of man and is an essential component of environment, it is of great importance to make sure that all nutritive requirements are adequately provided.

Too frequently the planning, purchasing, and cooking of food is relegated to untrained persons. The purchasing agent thinks mostly in terms of obtaining the largest bulk of food for the least amount of money. The cook may be a prima donna in handling bread, meat, potatoes, pie, and cake, and defy interference with the routine, especially the introduction of a more varied, nutritious diet and changes in cooking methods to preserve maximum nutrients in the food purchased and to reduce waste and losses.

The arrangement of having menus planned independently by a variety of persons, regardless of their individual knowledge and capacity for wise planning, introduces a hazardous element, especially for growing children. Never is there assurance that the complete daily needs of the children are being met. In addition, problems arise when school lunches are eaten away from the institution, and when daily meals are served in various places, particularly when

[1] Received for publication January 21, 1950.

institutions are organized according to the modern trend on the cottage plan, often in conjunction with a main dining room. It is particularly important for children that the food consumption during the entire day be checked to determine its regularity as well as adequacy. For the most efficient utilization of food, the essential nutrients must be given at regular intervals and adequately balanced in proportions.

To maintain adequate feeding on the limited funds usually typical of children's institutions, perpetual inventories together with careful budgeting are necessary. The vigilant supervision of a nutritionist or dietitian can increase economies through wise buying, proper storage, preservation and preparation of food, prevention of waste, and sound use of leftovers. In working with housemothers, she can intelligently direct their menu planning, selection and use of recipes, and give them a basic understanding of food values. Such guidance would tend to eliminate the all too frequent practice of subjecting children to the prejudices of an untutored staff.

Increased understanding of the importance of good nutriture has awakened interest in developing methods which may be applicable in the study of individual persons, the family, or institutional groups. Many methods of dietary study, their relative merits and interpretations have been reviewed by Widdowson of the Medical Research Council of London (2) and the National Research Council (3). The inventory method is particularly adapted to meet the need for a quick, easy, inexpensive method of dietary evaluation that can be applied to groups, such as institutions.

This trend toward group evaluation has emphasized the growing importance of and the need for the skill and understanding of the food expert whose training equips her not only for specific duties and the intelligent handling of equipment and personnel problems, but also for the larger role of teacher and consultant to various groups who require her assistance. Realization of the broad opportunities for service can render her a most valuable adjunct to any community or institutional nutrition program. Recently, some large-scale dietary investigations superimposed upon the regular routine of institutions have emphasized such a need.

The administrators of progressive public and private institutions continually endeavor to improve all the standards of care and services for children under their supervision. Institutions without a staff dietitian or nutritionist may obtain the benefit of dietary evaluation through cooperative efforts with community or state organizations, and by the use of the survey method. This has been done most successfully at the Methodist Children's Village, Redford, Michigan, where Dr. Frances Knight, its Director, sought the assistance of two Detroit agencies—the Dietetics Department of Harper Hospital and the Research Laboratory of the Children's Fund of Michigan—to assess and evaluate current food practices and the quality of the diets, and to recommend ways and means of bringing about improvement based upon the results obtained. Subsequent reports will present information gained through surveys in other types of child-caring agencies.

METHOD

This survey at the Methodist Children's Village, described in an earlier paper (4), was suggested by the outcome of a nutritional status study on the children in which certain blood constituents were determined microchemically (5–9). Analysis of the results of these studies indicated that their interpretation might be enhanced by relating them to kinds and quantities of food consumed by the children.

During the observed intervals, sixty-eight children, with approximately equal representation of boys and girls ranging from six to eighteen years of age, were living at the Village. The children live in groups of nine to twelve in individual cottages, where, under the supervision of a housemother, cottage life is designed to duplicate as nearly as possible that of a normal home. The rural setting of the Village greatly accentuates its beauty and provides a variety of healthful work and play experiences.

Although the children participated most actively in the life of each cottage, the six dinners served weekly in a central dining room provided an experience in which everyone could take part. Each housemother assumed the responsibility of planning the breakfast and lunch menus in her cottage and the dining room meals were planned by a cook. At the time of this study, no effort was being made to integrate the menus for an entire day nor to plan uniform meals for each cottage.

Irrespective of the age, number, and sex of its inhabitants, each cottage received an equal weekly allocation of food. One person bought all the food which was then distributed to the dining room and cottages. Most of the food was purchased locally at retail prices, although surrounding farm land owned by the Children's Village was a potential source of significant quantities of farm products. During this period of observation, the farm was not being worked to capacity nor were its products being economically used at the Village. Refrigeration units in the dining room and cottages were of acceptable capacity. Storage space for excess garden produce and other fruits and vegetables which could be stored advantageously at higher-than-refrigeration temperatures was provided by a large root cellar.

For assessing the adequacy of the children's diets the inventory method, used extensively in studies of family food consumption (10–12), was selected. By this method complete inventories of food on hand are taken at the beginning and end of the experimental period. In addition, food purchased during

the interval and all waste are accounted for. *Family Food Plans for Good Nutrition* (13) for low-cost menus, published by the U. S. Department of Agriculture, was used as a guide in establishing the quantities of essential foods desirable for optimal growth and maintenance within the age and sex groups represented. This plan classifies everyday food into eleven major groups: (a) milk; (b) potatoes, sweet potatoes; (c) dry beans and peas, nuts; (d) citrus fruits, tomatoes; (e) green, yellow vegetables; (f) other vegetables and fruits; (g) eggs; (h) meat, poultry, fish; (i) flour, cereals; (j) fats and oils; (k) sugar, sirups, preserves. The weekly allowances in the plan are stated in terms of household weights and measurements.

In order to obtain comprehensive and representative results, food inventories were taken at the beginning and at the end of two consecutive thirty-one-day periods. Consumption for the dining room as well as for the individual cottages was determined during the first period, but only the total food consumption was calculated for the second period. In arriving at the total food provided for the children, the estimated intakes of housemothers, staff members, and guests were deducted from the total quantities of food supplied. Edible as well as inedible, wastes were taken into account.

RESULTS

The total quantities of foods consumed during the first and second inventory periods contrasted with the quantities recommended (13) for the corresponding intervals are presented in Table 1. For the first period, the intake and recommendations are separated into two major divisions of meal service, the dining room and the cottages.

During the first period the intakes of cereals, potatoes, and meats were considerably below standard. In the second period, both potatoes and meats were being utilized in the recommended higher quantities. These changes were accompanied by a decreased consumption of citrus fruits. Although the intake of citrus fruits almost reached the recommendation during the second period, this quantity represented only 56 per cent of the consumption during the first period.

The percentage of the total recommendations of individual foods which the children received in each cottage and in the dining room (Table 2) indicates the relative consumption of all the major foods in the two locations, and also clearly shows the differences in levels of consumption of the same food groups by each cottage. Since two meals per day were eaten in the cottages, it might be expected that the cottages would provide a larger proportion of most of the food groups. This was not the case. Except for eggs and sugars, the consumption in the dining room of all the food groups approximated or exceeded the amount taken in the cottages. Since it is generally believed that an even distribution of the essential nutrients among the three meals insures maximum utilization, the wisest distribution may not have been made.

Even more striking, however, were the differences in the total amounts of food received by the children in the separate cottages. Two of the most widely divergent intakes (Table 2) have been presented graphically in Figure 1. Cottage *1* represents the group with the highest consumption per child and Cottage *5* with the second lowest. Cottage *5* was selected because blood data were available for these children. Children in Cottage *1* consumed more in

TABLE 1

Foods consumed by children during two, thirty-one-day inventory periods

FOOD GROUPS	FOOD CONSUMPTION							
	Period I						Period II	
			Dining Room		Cottages			
	Recommendations*	Total consumed	Consumed	Per cent recommendations*	Consumed	Per cent recommendations*	Recommendations*	Total consumed
Milk (qt.)	1928	3112	1658	86.0	1454	75.4	1956	2801
Potatoes (lb.)	1057	875	621	58.8	254	24.0	1125	1192
Dried legumes (lb.)	86	173	90	104.6	83	96.5	98	113
Citrus fruits (lb.)	524	908	503	96.0	405	77.3	565	512
Green and yellow vegetables (lb.)	526	1348	1037	197.1	311	59.1	556	1284
Other vegetables and fruits (lb.)	864	1691	1111	128.6	580	67.1	913	1529
Eggs (number)	1707	2040	672	39.4	1368	80.1	1781	2460
Meats (lb.)	642	552	450	70.1	102	15.9	717	644
Flour and cereals (lb.)	1238	875	432	34.9	443	35.8	1336	828
Fats (lb.)	266	331	212	79.7	119	44.7	286	428
Sugars (lb.)	258	316	93	36.0	223	86.4	278	529

* Amounts of food calculated for the 68 children from the recommendations of the *Family Food Plans for Good Nutrition* (13).

TABLE 2

*Food consumption of groups of children in percentage of recommendations**

FOOD GROUPS	PERCENTAGE OF RECOMMENDATIONS AS CONSUMED BY CHILDREN IN EACH COTTAGE													
	Cottage 1		Cottage 2		Cottage 3		Cottage 4		Cottage 5		Cottage 6		Cottage 7	
	Dining room	Cottage	Dining room	Cottage	Dining room	Cottage	Dining room	Cottage	Dining room	Cottage	Dining room	Cottage	Dining room	Cottage
Milk (qt.)	76.4	80.7	83.4	70.8	90.9	74.3	95.1	90.2	82.1	76.4	92.1	74.6	83.6	64.2
Potatoes (lb.)	54.3	33.3	55.5	20.2	60.6	4.5	64.0	26.4	60.0	15.0	62.3	40.2	55.3	30.9
Dried legumes (lb.)	78.6	78.6	93.3	80.0	118.2	63.6	133.3	55.6	127.3	136.4	116.7	175.0	85.7	85.7
Citrus fruits (lb.)	103.4	106.9	92.8	89.3	91.6	91.6	103.2	60.3	94.0	44.6	100.0	88.5	90.7	64.0
Green and yellow vegetables (lb.)	185.1	58.2	192.8	50.6	198.7	59.5	212.7	74.6	194.0	59.0	211.8	60.5	186.7	54.7
Other vegetables and fruits (lb.)	127.9	68.3	128.4	46.3	134.1	65.1	114.4	60.8	131.3	76.3	139.8	78.9	124.0	76.0
Eggs (number)	39.2	103.4	39.8	78.2	39.5	72.1	36.0	77.7	39.2	73.6	42.8	88.9	38.9	71.8
Meats (lb.)	71.0	18.4	66.0	11.3	70.1	14.4	73.4	27.8	70.0	13.0	72.2	14.4	69.0	14.9
Flour and cereals (lb.)	34.2	30.9	33.7	22.6	39.4	40.6	40.6	55.8	28.3	34.6	37.8	22.6	34.1	50.0
Fats (lb.)	75.8	51.5	78.6	38.1	86.5	48.6	87.1	54.8	71.7	30.4	84.6	46.2	76.3	50.0
Sugars (lb.)	37.9	75.9	37.5	80.0	38.9	108.3	40.0	86.7	26.9	57.7	37.8	124.3	38.2	82.4

* From the *Family Food Plans for Good Nutrition* (13).

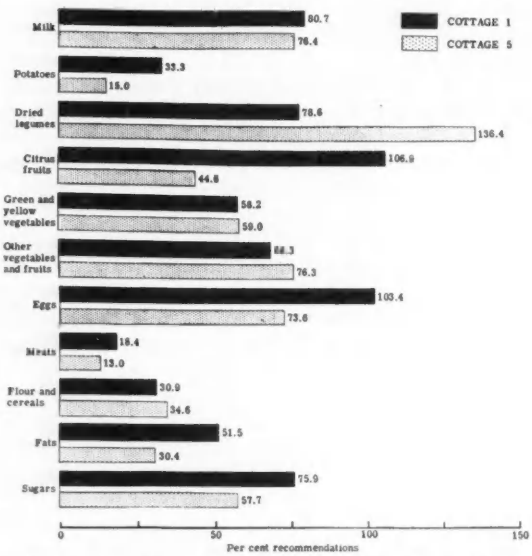

FIG. 1. *Food consumption of children living in two cottages.*

each food group than Cottage *5*, with the exception of legumes, green and yellow vegetables, other vegetables and fruits, and cereals. The difference is particularly apparent in the citrus group. The children of Cottage 1 received 107 per cent of the citrus group recommendation from their cottage meals while the children of Cottage *5* received only 45 per cent. In Figure 2 are shown the average vitamin C levels obtained on three successive days just prior to this survey for the children in the two cottages. For Cottage *1*, the average levels were 0.90, 0.96, and 0.54 mg. per 100 cc. serum, and ranged between 0.21 and 1.87 mg. For Cottage *5* average vitamin C serum levels were 0.13, 0.17, and 0.12 mg. per 100 cc. serum, and ranged from 0.00 to 0.34 mg. György (14) has stated that the normal level for ascorbic acid in human blood plasma is 0.7 mg. per 100 cc. Youmans (15) has observed levels ranging from 0.7 to 1.2 mg. per 100 cc. in well nourished subjects, between 0.4 and 0.7 mg. per 100 cc. in borderline cases, and below 0.5 or 0.4 mg. per 100 cc. in definitely deficient subjects.

It is significant in this study that the highest and lowest consumptions of citrus fruit are associated with the corresponding maximum and minimum serum vitamin C concentrations (Fig. 2). Darby (16) found a similar relationship between the intake of ascorbic acid and serum blood levels of school children in Tennessee. School *R* (high economic group) consumed a mean level of 67.2 mg. ascorbic acid per day with an average serum level of 0.81 mg., and School *C* (low economic group), with a mean intake of 36.6 mg. per day, had a blood serum level of 0.44 mg. ascorbic acid.

DISCUSSION

The results of any dietary study should be interpreted with an understanding of the limitations of the method used. In this study the inventory method gives a clear indication of the food available per child at the Methodist Children's Village. The standard chosen for assessment seems well adapted to the accuracy of the data so obtained. By combining the inventory method and Family Food Plan (13), it is possible to get a general index of the food available per person within a given group. However, such a method does not indicate individual food consumption.

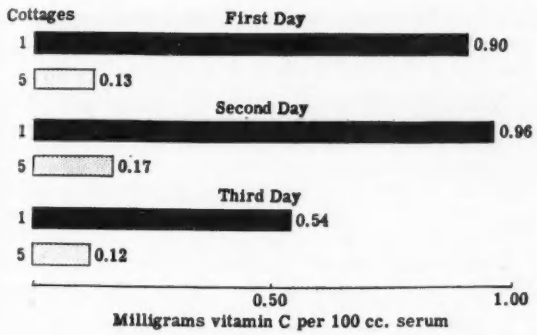

FIG. 2. *Average serum vitamin C levels of children in two cottages on three consecutive days.*

The evaluation of nutritional state is now recognized to be a complex undertaking including dietary surveys, chemical tests, and medical inspection (3, 17). It is becoming more apparent that the selection of any one index for differentiating between degrees of nutritional well-being may give incomplete findings. Hence, it is not possible to judge the nutritive state of the children represented in this study by the food intakes alone. This information coupled with the chemical tests, medical inspection, and certain observations of physical growth and performance gives a reliable indication of good nutrition.

Some dietary implications may be correlated with microchemical findings. Blood serum levels (Table 3) reflect the amount of bone formation and the state of body reserves of iron, protein, vitamin A, carotenoids, vitamin C, and alkaline phosphatase. The relatively high intake of milk, eggs, and legumes, supplementing the somewhat lowered consumption of meats, parallels normal mean hemoglobin and serum protein values (6, 8). Normal serum vitamin A and carotenoid levels also corroborate the high intake of green and yellow vegetables (7).

When serum vitamin C levels were considered in conjunction with the vitamin C-contributing foods provided at the Children's Village, some significant observations were made. Assuming that the children of each cottage consumed their proportional share, the amounts of citrus fruit and tomatoes provided in the dining room were enough in excess of recommendations to obscure the inadequate intakes shown by three of the seven cottages. However, the vitamin C serum levels seemed almost solely dependent upon the quantities of these foods eaten in the cottages. Since the children depended almost entirely upon the cottage as a source of oranges and grapefruit and received tomatoes in the dining room, a difference in physiologic usefulness of these vitamin C foods is suggested. It appears that the quantity of vitamin C available to the body was less than that indicated by the quantities of food supplied. Losses through cooking procedures are known to account for part of this discrepancy.

It was also observed that in cottages with low intakes of citrus fruit, an appreciable increase of fruits and other low-potency sources of the vitamin had no noticeable effect on the vitamin C serum level. Similar results were reported by Bessey and White (18) who found a correlation between vitamin C in the plasma and the amount of vitamin C provided by citrus fruits. They were unable to increase the serum concentration of ascorbic acid by adding other sources of vitamin C to the diet. Children who received no citrus fruit showed zero or near-zero concentration of vitamin C in the plasma; however, in none of these children was there any evidence of scurvy. In view of these findings, it is postulated that the quantity of vitamin C ordinarily consumed from sources other than citrus fruits is adequate to prevent scurvy but inadequate for maintaining satisfactory blood plasma levels. However, the value of other sources of vitamin C should not be discredited. Roberts, Blair, and Greider (19) found that canned pineapple juice added to diets containing minimal quantities of citrus fruits brought low vitamin C blood levels within the normal range. They stressed the advisability of supplementing diets limited in citrus fruits with other foods which have fair or low sources of the vitamin.

In body economy tyrosine and phenylalanine metabolism depend upon the presence of vitamin C; similarly, other vitamins depend upon the presence of other amino acids and minerals (20). Therefore, the relative proportions of the various essential nutrients to one another is an important consideration in evaluating a diet. Vitamin C is more fully utilized if it is given frequently during the day rather than in a large quantity as was done in some of the cottages. Todhunter, Robbins, and McIntosh (21) demonstrated that following citrus fruit at breakfast, the vitamin C level of the blood returned to the fasting level in 3 to 4 hr. Furthermore they observed that, when the vitamin C level was below 0.5 mg. per 100 cc. blood, and intake of 50 mg. vitamin C had no immediate effect on the blood level.

TABLE 3

*Constituents of blood of children, six to eighteen years of age**

CONSTITUENT†	AMOUNT	
	Mean	Range
Hemoglobin (gm./100 cc.)	13.7	11.5–16.5
Protein (gm./100 cc.)	6.93	6.2–8.0
Vitamin A (mcg./100 cc.)	42	30–70
Carotenoids (mcg./100 cc.)	185	80–340
Vitamin C (mg./100 cc.)	0.95	0.0–2.0
Alkaline phosphatase (nitrophenol units)	6.76	1.0–13.0

*From (5–9).

†Hemoglobin values are given on the basis of whole blood; all other values are on the basis of blood serum.

Consequently, the nutrients in the dietary should be carefully integrated to provide an adequate, well-balanced mixture, distributed through the day at intervals for most complete utilization.

The cottage plan has much to offer in providing a well-rounded home life for institutionalized children, and it would seem desirable to preserve this attractive feature whenever possible. Collectively, the children at the Village were well fed, but individual shortcomings were evident (Table 2). To insure nutritional adequacy for all, correlation of the cottage and dining room feeding plans is essential.

It is the obligation of institutional administrators and those who supervise children in foster homes to recognize the children's need for the correct quantities and distribution of foods for optimum nourishment and, when no food expert is on the staff, to seek assistance through outside sources. Public agencies, such as hospital dietetic departments, local health departments, the Community Fund and its Visiting Housekeepers, are usually available and ready to cooperate in food planning and guidance. The departments of nutrition in municipal and state colleges are another source of help. States often have on the department of health staff a nutritionist who will work as a consultant on these food problems. Services available on the national scale include the pamphlets and educational materials from the Children's Bureau of the Federal Security Agency, and the work of the Bureau of Home Economics and Human Nutrition in the Department of Agriculture on low-cost menus which such untrained persons as housemothers can use in becoming acquainted with the essential nutrients and the evaluation of foods. The recent reorganization under Dr. Philip C. Jeans and the forthcoming publications of the Committee on Institutional Feeding of the National Research Council's Food and Nutrition Board point to further interest in the status of food planning and practices in children's institutions.

SUMMARY

An investigation covering two, thirty-one-day periods at the Methodist Children's Village, Redford, Michigan, has shown some of the problems involved when meals in a children's institution are divided between cottage and main dining room and emphasizes the importance of integrating these feeding plans. Evaluation of nutritional status of the sixty-eight boys and girls was determined by comparing food intakes determined by the inventory method with microchemically determined blood levels for hemoglobin, serum protein, vitamin A, carotenoids, vitamin C, and alkaline phosphatase. The inadequacy of the vitamin C consumption in some of the groups of cottages was confirmed by the low vitamin C blood levels.

In order to avoid the hazard of meals planned by an untutored staff, the contributions of a trained food expert or consultation service is suggested as essential to improve dietary adequacy and maintain balanced distribution of nutrients throughout the day. Sources of help in planning are pointed out for the benefit of those institutions who have no dietitian or nutritionist on the staff.

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Cook Books Through the Ages

Eating is as old as man; but when cooking first began is an unanswered question. Charles Lamb's essay on roast pig is a charming literary masterpiece though of questionable authenticity. One writer in 1727 treats of cookery from the earliest times and writes in his preface, "That Esau was the first Cook, I shall not presume to assert; for Abraham gave Order to dress a fatted Calf; but Esau is the first Person mentioned that made any Advances beyond plain Dressing, as Boiling, Roasting, etc. For tho' we find indeed that Rebeckah his Mother was accomplished with the skill of making savoury Meat as well as he, yet whether he learned it from her, or she from him is a Question too knotty for me to determine."

Babylonian clay tablets from 2500 B.C. were inscribed with details of food. The Greeks relished food, and Roman banquets were famous. Early manuscripts from the first century give recipes. However, the first printed cook book is believed to have appeared in 1480 written in Latin by Baptista Platina. This book contains about 300 recipes and "treats of the mode of living most beneficial to the human body and discourses at length on the quality and varieties of meat, fish, fruit, vegetables, etc., and how they nourish the body and the manner in which they ought to be prepared, giving the correct sauces to be served with dishes of meat and fish."

The old cook books are treasures of information revealing the art and culture of peoples through the ages. Also, many of the early books were a combination of medicine and cookery and not infrequently they dealt with moral conduct. One published in 1701 had the title: "The Whole Duty of a Woman or a Guide to the Female Sex, from the Age of Sixteen to Sixty, etc., Being Directions, How Women of Qualities and Conditions, ought to Behave themselves in the various Circumstances of this Life, for their obtaining not only Present, but Future Happiness." This book was written by "a Lady" and included "Choice Receipts in Physick and Chirurgery, With the Whole Art of Cookery, Preserving, Candying, Beautifying, etc."

Books were written for different reasons, but what could be more illuminating than that given by Hannah Wolley in 1664 in "The Cooks Guide" which she says she wrote "to testifie to the scandalous World that I do not altogether spend my time Idlely."

Measurements and time were a problem in the older cook books. Consider this from a book of 1669 for making tea: "The water is to remain upon it no longer than whiles you can say the Misere Psalm very leisurely."

Some books were written by men, and they were far from modest in their claims for knowledge of women and what they should do as, for example, Gervase Markham. In 1649 the fifth edition of his book was titled "The English House-Wife, containing the inward and outward Vertues which ought to be in a Compleat Woman as her skill in Pysick, Surgery, Cookery, Extraction of Oyles, Banqueting Stuffe, Ordering of Great Feasts—and all other things belonging to an Household. A Work generally approved, and now the fifth time much augmented, purged, and made most profitable and necessary for all men, and the generall good of this Kingdom." And in 1660 Robert May wrote "The Accomplished Cook; or The Art and Mystery of Cookery. Wherein the Whole Art is revealed in a more easie and perfect Method, then hath been publisht in any Language." Among the recipes is one for baking frogs, and in the preface the author says, "God and my conscience would not permit me to bury these my Experiences in the Grave."

The following source books are recommended for those who wish to explore further the rich and varied treasures of information to be found in the cook books of the ages:

Vicaire, Georges: Bibliographie Gastronomique. Paris, 1890. (Vicaire was an eminent scholar and versatile writer and his work covers the early European literature.)
Oxford, Arnold Whitaker: English Cookery Books to the Year 1850. London: Oxford University Press, 1913.
Bitting, Katherine G.: Gastronomic Bibliography. The author, 1939.

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Trends in Family Food Consumption

Implications for Child Feeding[1]

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WE HAVE this year in the United States a food supply big enough and varied enough to furnish everyone with diets that would meet the National Research Council's recommendations if we were able closely to match consumption with nutritional needs and if we were able fully to prevent visible and invisible losses of foods and nutrients.

However, as you well know, every person does not eat a fully adequate diet. And you know the reasons as well as I. Families differ in their purchasing power; school food service can help make amends on this point. Many have never had a chance to really learn how to choose an adequate diet; education associated with school meals has a part to play here. And, there are sceptics even among our friends and acquaintances who are not yet convinced that something worth while is to be gained from bringing food habits into close accord with modern knowledge about nutrition.

Despite this, there are some long-term trends in food consumption in this country that are gratifying to the nutritionists.

TRENDS IN CALORIC CONSUMPTION

If you take a broad view of our present-day national food supply, you can divide it, calorie-wise, approximately into thirds. One third is made up of grain products, potatoes, and pulses—foods that are relatively cheap and which give consumers excellent nutritional returns for their expenditure.

A second third is made up of succulent vegetables and fruit, and of milk, meat, fish, poultry, and eggs—foods that take a good deal of land and labor to raise and are expensive to market.

The last third consists of fats and sugars.

Figure 1 will remind you of the nutritional contribution in addition to calories that each of these thirds makes to the diet.

The grains, beans and peas, and starchy roots supply not only about 30 per cent of our calories but significant amounts of protein and several other nutrients. The livestock products (other than fat) and the succulent vegetables and fruit supply about 35 per cent of our calories, generous proportions of high-quality protein, and minerals and vitamins which supplement those provided by foods in the first category. The fats and sugars supply about 35 per cent of our calories, but, apart from the vitamin A of butter and fortified margarine, little else in terms of nutrients. (Having recently come back from Europe, I am not unmindful, however, of their contributions to flavor and general acceptability of diets.)

Since 1909 there has been an upward trend in the consumption of foods in the middle group—sometimes called protective foods because they are depended on for so many nutrients—which includes milk and its products; the leafy green and yellow vegetables; tomatoes and citrus fruit; and meat, fish, poultry, and eggs. The long-term increases in consumption of the first three have been especially important because of their dietary contribution of calcium, riboflavin, vitamin A, and ascorbic acid. Trends in all of these food groups are toward a national diet richer in important nutrients, but toward a more expensive diet.

On an overall basis, calories and protein have never been a serious problem in this country. On the other hand, trends in the consumption of calcium, iron, and five of the vitamins provided by our national food supply since 1909 have varied (Fig. 2). Calcium, riboflavin, vitamin A, and ascorbic acid all show long-term increases, due largely to our increased use of milk, eggs, meat, and the succulent vegetables and fruit. Iron, thiamine, and niacin tended to decline until the mid-thirties. From then until the end of World War II, the provision of these nutrients rose markedly, due largely to the enrichment of bread and flour. Although there has been

[1] Presented at the meeting of the School Food Service Association in Washington, on November 17, 1949.

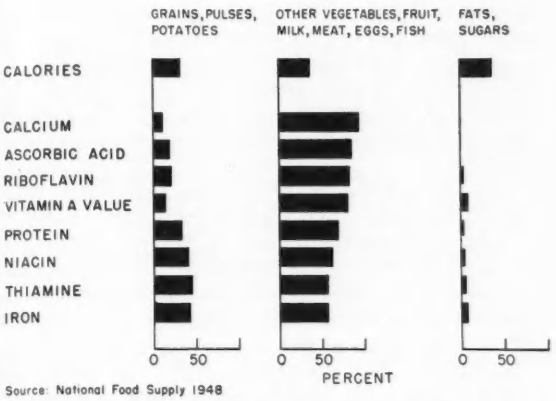

FIG. 1. *Nutrients from three food groups in the United States' dietary.*

some decline in food consumption since the peak year, 1945–46, levels of all nutrients are still well above prewar.

TRENDS IN FOOD CONSUMPTION

In addition to the long-term trends on a national scale that can mean better diets in this country, you will be interested in some shifts that seem to be taking place in patterns of food consumption among groups of families.

In the spring of 1948, a cross section of city families gave the Bureau of Human Nutrition and Home Economics information on food consumption that can be compared directly with findings of a similar survey made in 1942. We found that a much larger proportion of families had good diets in 1948 than in 1942.

Average quantities of protein, iron, and five well-known vitamins were above the National Research Council's recommended allowances at all income levels. For calcium, averages were less than those recommended only in the lowest income groups. But these figures are averages for groups of families. Among families with diets below recommended levels, calcium, ascorbic acid, and the B-vitamins were most often short. Over four in ten city families had less than the National Research Council's allowances for calcium. And about two in ten of all the families had less than the recommended amounts of ascorbic acid, thiamine, riboflavin, and niacin when some allowance is made for average losses in cooking.

FOOD CONSUMPTION TRENDS RELATED TO INCOME

In part, this dietary improvement over 1942 was due to the higher incomes of 1948. Even more significant than the average increase in real incomes was the relatively large increase in the real incomes of the poorest third of the urban population.

In both years the higher income families bought more of some types of food than did those in lower

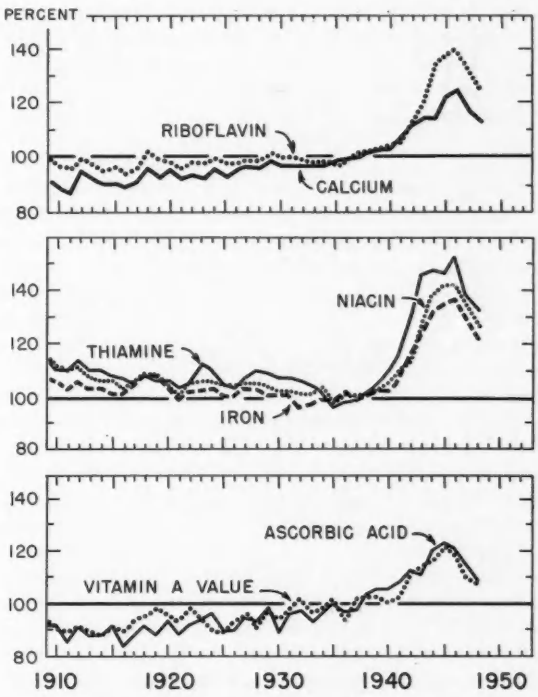

FIG. 2. *Minerals and vitamins in the national food supply from 1909 until 1948.*

income brackets—chiefly vegetables and fruits, especially the frozen ones and citrus and other fresh fruit; milk and its products; and meat, poultry, fish, and eggs. But as the lower income families improved their position with respect to *real* income, they bought larger quantities of many of these foods. For example, in 1948 the third of the city families with lowest incomes bought 39 per cent more meat, poultry, and fish than did the same group in 1942. But for the third of the families with highest incomes, there was virtually no change in the quantity of meat, poultry, and fish consumed in 1948 as compared with 1942.

In the spring of 1948, families at every income level used more milk or milk products other than butter than families at the same dollar income levels in 1942. But even so, increases in milk consumption were greater for the lower than the upper third—28 per cent for the lowest-income third and 19 per cent for the third with highest incomes. Increases in citrus fruit were about 27 per cent for the lowest-income third, but for the third with highest income, there was little or no change.

Here we have concrete examples of what we have long expected to happen: an increase in food consumption when more purchasing power is available to lower income families, and a greater increase for some foods than for others. Good meals rank high among the products competing for a share of the

family dollar. And, I believe, people are more aware of the importance of good diet than they used to be. But I must hasten to add that we are still far from our goal of adequate diets for all—even for high-income families.

FOOD CONSUMPTION OF CHILDREN

Facts about family diets and trends that are apparent directly affect the work of the school lunch supervisor. Every supervisor of school food service naturally wants to respond to the challenge to make the meal at school not only as good as, but better than the one a child would get if he were eating at home. The better the diets at home become, the more difficult it is to meet the challenge. In addition, every school food service supervisor is concerned that the meal at school will supplement the meals served at the home dining table. Thus, you want to know, too, whether among the less well fed, the diets of children, like those of their families, tend to be shorter in calcium, ascorbic acid, and the B-vitamins than in other nutrients.

Some indication of how children fare in relation to their families comes from a small study made in the spring of 1947 by the Bureau of Human Nutrition and Home Economics in cooperation with the U. S. Public Health Service and local school and health authorities in a city in Maryland. About 40 per cent of the children, but only 20 per cent of the families had diets that met the National Research Council's allowances for calcium. This indicates that the children's greater needs for calcium were recognized by the families in serving milk. But, in both ascorbic acid and in vitamin A value, the quality of the children's diets was about the same as that of the rest of the family.

It seems reasonable to suppose that in general, as in this study, the diets of children would tend to need improvement in the same nutrients as the diets of their families. Obviously, then, to round out the total diets of the children, the nutrients in short supply in family diets should be emphasized in school lunches.

DO SCHOOL LUNCHES ADEQUATELY COMPLEMENT HOME MEALS?

Direct chemical analysis of some meals served to children in fifteen schools in seven different places throws some light on this. Dr. Milicent L. Hathaway and Dr. Frieda L. Meyer of our Bureau found that Type A meals, including milk to drink, usually contain enough protein, calcium, and riboflavin to furnish children with at least one-third of their recommended daily allowances. However, many did not provide correspondingly generous amounts of ascorbic acid and thiamine, two of the nutrients in which family diets are also frequently found to be low. Scarcely half of the seventy meals analyzed provided the children with one-third of the recommended allowances for ascorbic acid and even fewer a corresponding level of thiamine.

On the basis of *calculated* nutritive value, Sadye F. Adelson of our staff found in the Maryland city referred to earlier that the children who had lunch at school fared better nutritionally than those who did not.

To some extent the children participating in the school lunch program had better home diets. Although the families of both participants and non-participants in the school meals had fairly similar incomes and made similar food purchases, more of those families whose children ate lunch at school lived in the open country. Their purchased food was supplemented by home-grown vegetables and fruits which improved the nutritional value of their diets. In any case, the school lunch did tend to complement customary diets in the community.

Milk, green and yellow vegetables, and tomatoes and citrus fruit were relatively more prominent in school lunches than in home meals. Using the amounts in home meals as 100, an index of the quantity of milk and its products (except butter), which are the chief sources of calcium, was 134 in school lunches; of green and yellow vegetables and tomatoes and citrus fruit (important for ascorbic acid), 157; and of milk and green and yellow which contributed much vitamin A and carotene, 138.

In planning schools meals, it is helpful, of course, to have definite knowledge of the nature of home diets of children. Otherwise, from studies in this country, it would seem well to assume that diets needing improvement probably need foods rich in calcium, the B-vitamins, ascorbic acid, and vitamin A. So it is good news to school lunch supervisors managing on short funds that the October, 1949, list of foods which the Department of Agriculture distributes free to states requesting them for school use contains many that can make such contributions. There are cheese and nonfat dry milk solids for calcium and riboflavin; butter for vitamin A; concentrated orange juice, canned tomatoes, fresh fruit, cabbage, and potatoes for ascorbic acid; and peanut butter for thiamine and niacin. Dried eggs, of course, contribute high-quality protein as well as appreciable amounts of riboflavin, vitamin A, and thiamine.

MEASURING THE VALUE OF SCHOOL LUNCHES

Some doubting Thomases still wonder whether school meals make a difference in the child's nutritional status. Of course, the better the home diets in a community, the harder it is to measure the effect of five or fewer meals out of a week's twenty-one on physical, mental, and emotional development. While many investigators have worked under circumstances that have enabled them to point to favorable effects of nutritionally appropriate, appetite-appealing school meals on physical health and school attendance records, objective evidence of the advantages of

school feeding programs may increasingly have to be of a more subtle and less obvious nature. In poorly fed communities, we face and can meet the challenge of supplementing home diets. In well fed communities, we face perhaps a harder challenge—that of keeping the school lunch as good nutritionally as the home meal.

But in every community, school meals must be *good* meals. Food must be well prepared and attractively served in pleasant surroundings. And, school meals must make a positive contribution to the food-education experiences of children, taking account of their social and emotional, as well as their nutritional needs, at successive stages of physical and intellectual development.

As general nutritional levels in the country improve, school meals increasingly must mean more than just food. Because our social life is increasingly organized so that it is difficult for families to have all meals at their common table, the school meal has become an indispensable cog in many communities. Nutritionally adequate and psychologically satisfying school meals for every child will provide a sturdy foundation upon which education can build.

Minimum Requirements for Effective Machine Dishwashing

A Subcommittee of the Committee on Sanitary Engineering and Environment of the National Research Council has made recommendations regarding the minimum requirements for machine dishwashing for the armed forces and other governmental agencies. The Committee has also pointed out that the general adoption of these standards by institutions, hotels, and restaurants would simplify the procuring of dishwashing machines and auxiliary equipment which can be operated with consistently good results. The following is a summary of the recommendations; the complete report may be obtained from the National Research Council.

Scraping. Food remains shall be removed from dishes by suitable hand or mechanical device.

Pre-flushing. The pre-flushing of dishes with warm water, with or without detergent, is highly desirable. This may be done in a pre-flush section of the dishwashing machine or as a separate operation. The warm water containing detergent overflowing from the wash water tank or overflow rinse water may be used for pre-flushing.

Racks and Racking. The dish racks shall be designed to minimize masking of the sprays. Construction with non-marking, corrosion-resistant welded wire is recommended. The number of each type of utensil per rack shall be limited to prevent overcrowding. Enough racks shall be provided for continuous operation under maximum load. Means shall be provided for returning empty racks without damage or contamination from the outlet to the inlet of the machine.

Washing. Wash water temperature shall be not less than 140°F. With good pre-flushing, higher temperatures (160° F. or more) are desirable.

Minimum washing time shall be 20 seconds, during which each rack shall be sprayed from above and below in about equal amounts with a total of at least 12 gal. wash water per 100 sq. in. tray area under at least 3 lb. flow pressure at the top manifold.

In single-tank machines, washing time shall be controlled automatically at not less than 40 seconds; in multiple-tank machines, at not less than 20 seconds.

Means shall be provided to maintain the concentration of detergent in the wash water automatically and continuously at not less than 0.1 per cent by weight in excess of that needed to satisfy the hardness of the water. When the hardness of the water exceeds 5 grains, a hard water detergent should be used; when it exceeds 10 grains, softening to 5 grains or less is recommended.

In multiple-tank dishwashing machines, excessive spilling or carry-over of water shall be prevented by providing at least 15 in. space between the beginning of the wash tank and the center of the first spray arm opening; at least 20 in. between the center of the last wash spray arm opening and the first rinse spray arm opening; at least 5 in. between the center of the last rinse spray arm opening and the curtain rinse opening; and not less than 10 in. between the center of the last curtain rinse spray opening and the end of the rinse tank.

Rinse. A power or recirculated rinse (two-tank machine) is desirable wherever the quantity of utensils to be washed justifies the cost and the space.

Rinse water temperature shall be at least 180°F. at the inlet to the spray arm. Minimum rinsing time shall be 10 seconds, during which each rack shall be sprayed from above and below in about equal amounts with a total of not less than 12 gal. rinse water per 100 sq. in. of area under not less than 3 lb. flow pressure at the nozzles. Where this rinse is used as the sanitizing rinse, provision shall be made to stop the machine automatically and to display a warning light whenever the temperature drops below 180°F.

In single-tank machines without recirculated rinse, the fresh water rinse shall be maintained at not less than 180°F. at the inlet to the spray arm and provided with automatic stop and warning light as above. Minimum rinsing time shall be 10 seconds, during which each rack shall be sprayed with not less than ¾ gal. fresh water per 100 sq. in. of area under not less than 15 lb. flow pressure at the nozzles.

Construction. Tanks and hood shall be constructed of monel metal, stainless steel, or equally corrosion-resistant material in such a manner as to be easily cleaned.

Sharp angles, unnecessary ledges, and open seams shall be eliminated. To facilitate cleaning of the interior, as much of the piping as possible should be on the exterior of the machine. The supporting frame, motors, and pumps shall be of smooth construction with all parts accessible for cleaning. Side clean-out doors or removable panels not less than 16 in. wide shall be provided for convenience in cleaning.

Water Supply. To secure uniform water pressure, a pressure-reducing valve installed on the hot water line to the fresh water rinse is recommended, so set as to give 15 lb. flow pressure at the upper rinse arm openings while in operation. The water connections shall be made so as to prevent back-siphonage.

The hot water storage tank shall be of capacity and the heater of recovery capacity to supply the amount of water not less than 140°F. needed for maximum length of dishwashing periods and other operations. There should be a booster heater close to the point of application at the dishwashing machine for each fresh water rinse and of capacity to provide at least 2½ gal. water per 100 sq. in. tray area per minute at 180°F. or higher at the inlet to the spray arm for a single-tank machine and 2 gal. or less per minute of 180°F. water for each curtain rinse on a multiple-tank machine.

The UNICEF Feeding Program in the Philippines

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THE United Nations International Children's Emergency Fund (UNICEF) was established by a unanimous vote of the General Assembly in December, 1946, as an integral part of the United Nations. UNICEF is the United Nations' response to the emergency needs of children, adolescents, expectant and nursing mothers. It was directed to aid children and adolescents, first, of countries which had been victims of aggression; second, of other countries formerly assisted by UNRRA; and, third, through the promotion of child health purposes generally. The moral principle best reflecting UNICEF's spirit was laid down by the General Assembly: "Distribution will be on the basis of need, without discrimination because of race, creed, nationality, or political belief." All UNICEF agreements with governments embody this condition of aid.

Two of the basic policies laid down by UNICEF stipulate that the food provided be matched with an equal number of calories by the receiving country and that the receiving country pay for the cost of operations within its own territory. With this type of organization it may be possible to develop a permanent feeding program.

NUTRITION IN THE PHILIPPINES

That nutrition is a major health problem in the Philippines is clearly shown by the two leading causes of death. Tuberculosis heads the list with a death rate in 1947 of 177.3 per 100,000, accounting for a total of 32,661 deaths. Beriberi is second with a death rate of 141.9 per 100,000, causing 26,136 deaths in the same year. In 1948, tuberculosis claimed a death rate of 176.48, with beriberi registering a rate of 143.23 (43.59 deaths in persons over one year of age and 99.64 below one year). Salcedo *et al.* (1) report the incidence of frank or suspected beriberi to be 12.7 per cent of 12,400 people surveyed in Bataan province.

Rice is the main staple of diet in the Philippines. The Food and Agriculture Organization reports (2): "Typical rice diets contain too much rice in proportion to other foods and are deficient in vitamins of the B group, vitamin A, calcium and protein." Food intake studies made by Concepcion (3) indicate that the Filipino diet is apt to be deficient in calories, calcium, and vitamins, especially in thiamine, ascorbic acid, and riboflavin.

The production of milk in the Philippines is negligible. If milk from both domestic and imported sources were restricted to children under four years of age, it would give each child approximately 100 gm. daily. Further, the price of milk makes it prohibitive to all but a very few people.

Thus, in planning the UNICEF feeding program in the Philippines, the above points, together with the food habits of the people, were taken into consideration, and an attempt was made to correct, insofar as possible, the deficiencies. The UNICEF program aims at elevating the plane of nutrition by educating the people to eat a more balanced diet and to make proper and adequate use of their local foods.

UNICEF SUPPLEMENTS TO THE DIET

The UNICEF feeding program in the Philippines gives a supplementary feeding free to 18,350 of the most needy and undernourished infants, children, nursing and expectant mothers. The feeding is intended as a supplement to the existing diet, UNICEF providing foods with a high protective value of which the country is short. UNICEF provides 6825 infants under two years of age with 50 gm. powdered whole milk, and fish liver oil daily. Once a week, 350 gm. powdered whole milk is issued for each infant, and the mother is taught how to prepare the milk. Twenty-five hundred sick children in hospitals and children in leprosaria receive 50 gm. powdered whole milk daily, and 2500 children in child care institutions receive a daily ration of 50 gm. powdered skim milk.

In addition, a total of 4825 children between the ages of two and eighteen years and 1700 nursing and expectant mothers receive a 500-calorie supplementary meal daily, prepared and served in puericulture centers and schools. All those receiving the supplementary meal must eat at the feeding center.

Pattern for the 500-Calorie Supplementary Meal

Foods Provided by UNICEF
50 gm. powdered skim milk
17 gm. meat
1 fish liver oil capsule (4000 I.U. vitamin A)

Foods Provided Locally
60 gm. dark green leafy and yellow vegetables
30 gm. other vegetables and fruits
20 gm. small dried fish which can be eaten whole, or dried mongo beans, peanuts, or other legumes
35 gm. rice, undermilled or enriched, if available
5 gm. fat

An effort is made to have the 500-calorie meal supply as large a portion of the daily requirement of protein, minerals, and vitamins as possible. While existing studies of food intake do not indicate that the protein content of Filipino diets is low, yet in many areas the protein is chiefly from rice. In Table 1 is given the average calculated nutritive value of this 500-calorie meal.

Local foods rich in minerals and vitamins are included in the supplementary meal in order to establish the habit of eating these foods, so that when UNICEF supplies are no longer available, there will remain the basis for a lunch which provides a good portion of the day's requirements of protective foods.

Dried small fish which can be eaten whole are a good source of calcium and can be given to children of school age and older. The calcium content of 36 gm. dried dilis, a small fish which can be eaten whole, is as much as four glasses of milk. (One dried dilis, 1 in. long, weighs approximately 1 gm. and is equivalent, in calcium, to 1 oz. milk). To what degree the ingested calcium of the fish bones is assimilable is not known. For this reason and the fact that without milk the riboflavin content of the diet is low, milk should be included in the diet whenever possible. Bagoong, a fish paste made from shell fish and small whole fish, is another source of calcium and is generally popular throughout the Islands.

Even though dried mongo beans do not have as high a nutritive value as the soy beans, they are more available in the Philippines and are, therefore, recommended for use in the feeding program.

With the high vitamin A content of many foods grown in the Philippines, there should be no real deficiency problem regarding this vitamin. The problem is one of educating the people to eat these foods. In Table 2 is given the vitamin A content per 100 gm. of some of the fresh vegetables generally available throughout the Islands.

TABLE 1

Nutritive value of 500-calorie UNICEF meal and percentage of daily allowances recommended by UNICEF (5) and by the National Research Council of the Philippines (6) provided by the meal*

NUTRIENT	AMOUNT	PERCENTAGE OF RECOMMENDED DAILY ALLOWANCE	
		UNICEF (Child, age 6–9 years)	Philippine National Research Council (Child, age 7–9 years)
Protein	36.6 gm.	52.7	51.0
Calcium	.949 gm.	126.0	94.9
Vitamin A	5.260 I.U.†	175.0	175.0
Thiamine	.283 mg.	37.0	35.3
Riboflavin	1.051 mg.	84.0	70.0
Ascorbic acid	15.6 mg.	78.0	62.5

* The nutritive value given for the meal is the average of ten sample menus based on the pattern recommended for the feeding program.

† Exclusive of fish liver oil.

TABLE 2

Vitamin A value of some Filipino vegetables

VEGETABLE		VITAMIN A
Dialect name	Botanical name	
		I.U./100 gm.
Malungay	Moringa oleifera	35,000
Ampalaya	Momordica charantia	20,800
Carrots	Daucus carota	15,000
Alugbati	Basella rubra	13,000
Kangkong	Ipomoea reptans	10,600
Camote tops	Ipomoea batatas	8,500
Filipino spinach	Corchorus capaularis	6,000
Chinese peas	Pisum sativum	5,100
Sitao	Vigna sinensis var. sesquipedalis	4,000

Papaya (4) is a rich source of both vitamin A (2000 to 3000 I.U. per 100 gm.) and ascorbic acid (42 mg. per 100 gm.). Likewise, vegetables, such as malungay, green and red peppers, alugbati, and so on, are rich in ascorbic acid, many of them containing between 80 and 200 mg. per 100 gm. At the same time there are many local fruits from which substantial amounts of ascorbic acid are available. Among these are calamansi, chico, guava, locally grown lemons, lime, mango, papaya, pineapple, pomelo, and tomatoes. This group supplies from 20 to 100 mg. ascorbic acid per 100 gm. fruit (4).

A lunch made up entirely of local foods can supply a high portion of the daily requirement of the important nutrients with the exception of thiamine and riboflavin. Peanuts are grown in most areas of the Philippines, and the red skins of peanuts are a rich source of thiamine. Peanuts are generally acceptable and may be a practical source of that vitamin. So far no adequate local source of riboflavin has been found other than milk.

The use of undermilled rice is recommended, but since it is not generally available, figures for polished rice were used in calculating the food values given in Table 1.

To guide the feeding centers and encourage them

to follow the general plan for the meal, sample menus were made out. The meals were made to conform to, but at the same time to improve, Filipino food habits. The menus have been kept simple because of the inadequate facilities available and the difficult conditions under which food is prepared.

Mothers of the undernourished children receiving the meal, and members of the Board of Directors of the puericulture centers and of the Parent-Teachers' Association, form teams and take turns in preparing the lunch. By having both mother and child participating this way in the program and by keeping the cost of the food low and preparation simple, it is hoped that the methods of preparing foods at the center will be carried into the home.

Since planting seasons and the types of vegetables that will grow vary considerably in the different islands of the Philippines, a planting calendar prepared by the Bureau of Plant Industry and lists of the more nutritious vegetables were given to the Rural Improvement Clubs (similar to the 4-H Clubs) and the School Garden Clubs for guidance. When and where possible, the Rural Improvement Clubs cooperate by supplying vegetables to the centers.

THE PROGRAM IN THE SCHOOLS

The feeding program in the schools is a demonstration to show the need for a school lunch and to stimulate nutrition education. An outline for a nutrition education program to be given in conjunction with the UNICEF school lunch program was developed. This outline supplements the nutrition courses already being given in the schools and integrates nutrition with other courses and with school gardening. A set of specific objectives for the development of attitudes, habits and skills, and knowledge was adapted to Filipino customs. Simple teaching aids, a set of pre-test questions, and a set of questions for a test to be given at the end of the school year were developed for the different grade levels.

The menu served in the school program is the same as in the puericulture centers. The cost of the Philippine matching calories was held to a level which might make possible a permanent school lunch program to be subsidized either on the national or community level.

A supervisor of school lunches has been appointed by the Bureau of Public Schools to implement and supervise the Nutrition Education-School Lunch program.

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The Human Factor in Nutrition

Nutrition taken alone is as useless as synthetic vitamins with an otherwise inadequate diet. For a change of habits, psychological changes must take place in the person. Food choices are bound up with emotional attitudes unconsciously acquired but grimly held. Those who assume that food is eaten primarily for health live apart from mankind. Those who believe food habits are easily changed are not aware of the roots of the dislikes.

The infant who has not sensed affection while he was being fed or who has been distressed or unduly hungry is likely to become a food problem and remain one. A mother's critical attitude toward his food habits or toward his lack of muscular coordination and consequent messiness may result in his refusing certain foods for all time. If a child anticipates adverse reaction at mealtime, his actions become subversive and he releases his spleen by food refusals. The child who eats well has been blessed with an understanding mother.

Possibly we actually improve health more by interesting young students in good baby care than we do by teaching nutrition as such. If mothers and young girls looked upon each addition to an infant's diet as an educational step, not as a nutritional necessity, tensions that produce conditioned malnutrition might be prevented. If we emphasized the difficulty involved in learning to drink from a cup, to get sticky food from a spoon with the tongue, to handle utensils, or to accept new flavors, there would be fewer children refusing foods and courting undernutrition. A mother who thinks her child is ready to learn to take cereal or vegetables from a spoon at four months is less tense than one who thinks that without the added mineral or vitamin supply he will be under par.—*Abstracted from a article by Jennie I. Rowntree in the* Journal of Home Economics *41: 433 (October), 1949.*

Non-Caloric Functions of Fat in the Diet[1]

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FATS ARE generally regarded as optional components of the diet which can be partly or wholely replaced by other sources of calories without changing the nutritive value. It has long been recognized that fats are the foodstuffs which possess the highest caloric density. The ratio of calories yielded by fat compared with those given by protein or carbohydrate is usually much greater than 2.3, which is the figure arrived at from the quotient of the caloric equivalents of the water-free foodstuffs. Since fat is hydrophobic and rarely associated with much water, while protein and carbohydrate have the opposite property, the proportion of calories from fat and from carbohydrate or protein as they actually occur in foods is generally much greater than 2.3.

FATS AS VITAMIN CARRIERS

There are a number of well-recognized functions which fats may play. They may serve as sources of the fat-soluble vitamins. Thus, the vegetable oils are regarded as the most satisfactory foodstuff from which the tocopherols can be obtained. The fish liver oils are extremely potent sources of vitamin A, while butter fat and some animal fats likewise may contain considerable quantities of this vitamin. On the other hand, vitamin A itself is never found naturally in vegetable fats, although the provitamin A, β-carotene, is present to a sufficient concentration in palm oil to make this an especially nutritious fat and one which is commercially also a source of this provitamin A. Vitamin A as such is, of course, present in the fortified margarines. With the increased sale of colored margarine, β-carotene is in some instances being used in the dual role as a source of some of the vitamin A and likewise as a coloring agent.

Vitamin D is another useful component in fat, although this vitamin occurs naturally in concentrated amounts only in some fish liver oils, such as that from the halibut and to a much less extent from the cod. However, since the discovery of the ease of formation of the D vitamins in the food by irradiation, the synthetic product has come into prominence in supplying the need for this important vitamin. High levels of the vitamin can readily be produced by irradiation not only in animal and vegetable fats but also in foods which contain only small quantities of fat. Milk has proved to be one of the most satisfactory natural products from which to obtain the synthetic vitamin D for human consumption. Such high vitamin D milk can likewise be produced by feeding the cows large amounts of vitamin D. Fats are important not only as carriers of the fat-soluble vitamins but also in their capacity in assisting in the absorption of these vitamins from the gastrointestinal tract.

USE OF FATS IN FOOD PREPARATION

From the practical standpoint, fats are of considerable use in the preparation of foods. Without shortening, it is almost impossible to prepare many articles which have come to be regarded as standard foods. One does not need to dwell on the importance of fried foods in most diets or the use of oils and dressings in increasing the acceptability of salads. Fat-low diets become exceedingly unappetizing; there is no question but that fat greatly increases the palatability of the diet.

FATS AS SOURCE OF FATTY ACIDS

Most nutrition workers have agreed that man requires a certain amount of fat to supply the so-called essential fatty acids. Burr and Burr (1, 2) pointed out over twenty years ago that in the absence of fats from the diet, rats develop a fat-deficiency syndrome which is characterized by eczematous lesions, a scaly tail, hematuria, and finally death. Not all fats were found to be efficacious in preventing or curing this syndrome; best results were obtained with fats high in linoleic, linolenic, or arachidonic acids. The vegetable oils were especially efficacious in most cases, while animal fats were largely inactive.

Burr (3) has recently pointed out that the connotation "essential acids" gives an incorrect impression. Only one such unsaturated acid is needed to

[1] Presented at the 32nd Annual Meeting of the American Dietetic Association in Denver, on October 11, 1949.

bring about satisfactory nutrition, and any one of the three acids can individually accomplish this task.

Although Burr's results have been substantiated with the rat and fat-deficiency symptoms have likewise been demonstrated on many other animals including the dog and the pig, the proof of the requirement in man is less convincing. There are several reports of severe eczema in babies which seemed to be of dietary origin as they responded promptly to treatment with the fats containing the unsaturated acids (4, 5). However, in the case of adult man, skin lesions were not observed in an individual who voluntarily partook of a fat-free diet over a period of six months. Brown and his collaborators (6) did observe that the proportion of linoleate and arachidonate in the serum lipids was reduced by 50 per cent during the test.

Thus, at present, our concept is that fats and carbohydrates are largely interchangeable. However, small amounts of fats are required to furnish the unsaturated acids which are generally believed to be required by the human subject. Although fats undoubtedly play an important role in intermediary processes, it is true that we can manufacture them *in vivo* from carbohydrate or protein as rapidly as they are needed. Fats likewise are a convenient source of the several essential fat-soluble vitamins, but they are not the only way that these substances can be obtained. Finally, no one questions the importance of fat in increasing palatability and acceptability.

ROLE OF FAT IN GROWTH

There has been an increasing amount of experimental evidence that fat may actually play a specific role in nutrition. Thus, it has recently been demonstrated in our laboratories that the rate of growth of rats and the body weight which the mature rats attain is markedly influenced by the fat content of the diet. When diets containing 20 to 40 per cent cottonseed oil by weight were fed *ad libitum*, the growth far exceeded that obtained on fat-low diets with added linoleate or with diets having 5 per cent fat (7). Similar differences were noted when margarine fat was fed at several levels. In another series of tests, twenty-one-day-old rats were maintained on the diets containing the several levels of fat with the calories so restricted for twelve weeks that practically no growth was obtained (8). When these animals were allowed *ad libitum* feeding following the restricted period, considerably better growth was noted on the diets with higher fat levels. From the ninth to twelfth weeks on the *ad libitum* feeding, the rate of growth for the entire period was as follows: Diet 60b (no fat but linoleate), 4.3 gm.; Diet 61 (5 per cent fat), 6.6 gm.; Diet 62 (10 per cent fat), 17.3 gm.; Diet 63 (20 per cent fat), 14.6 gm.; and Diet 64 (40 per cent fat), 27.1 gm. Thus, high-fat diets would seem to retain their greater growth-promoting action in artificially stunted animals long after the period when the rat has normally completed its growth.

Still another type of experiment in which the index of nutritional value is based on body weight was carried out as follows. Young adult rats were placed on diets having several levels of fat which were fed in such restricted amounts that the male rats lost 40 to 50 per cent of their original weight over a twelve-week period. After this interval, the diets were administered *ad libitum*. In these tests it was observed that the smallest decrease in body weight during the restricted caloric period and the best recovery during the unrestricted period occurred on the high-fat diets. Strangely enough the highest mortality obtained on the 5 per cent fat level and the least on the diet containing 40 per cent fat (9).

Such progressively more critical indices of nutritional values as pregnancy and lactation indicate also that generous amounts of fat are to be preferred to low-fat diets (7–9). After recovery from prolonged undernutrition due to restricted calories, only those rats on the 20 and 40 per cent fat level showed a satisfactory reproductive performance, although the conditions of this experiment were so rigorous that none was able to raise the young to weaning (9). Sexual maturity of the females, as judged by the opening of the vagina, occurred earliest in the normal rats on the 40 per cent fat diet (7) and on the 20 per cent fat diet in the rats previously restricted in calories for twelve weeks from weaning after *ad libitum* feeding was instituted (8).

FAT AS SOURCE OF ENERGY FOR WORK

Work capacity provides another index for comparing the efficacy of a diet. Although Krogh and Lindhard (10), many years ago, indicated that fat was a less efficient source of energy for work than was carbohydrate, those results were contrary to the earlier comprehensive studies of Anderson and Lusk (11). The latter workers reported that the caloric expenditure of dogs in running was no greater after a prolonged period of fasting than it was after the administration of glucose. We have likewise found that rats on the 20 or 40 per cent fat diets could swim for periods two to three times as long as animals previously on a low-fat regime (7). This is not referable to differences in specific gravity, inasmuch as all animals were weighted at the start of the test to the same specific gravity. Samuels, Gilmore, and Reinecke (12) have found that rats fed for four weeks on a diet containing 80 per cent of the calories from fat accomplished more work and survived appreciably longer during a subsequent fast than animals which had received a diet correspondingly high in carbohydrate or protein during the pre-fast period. Gilmore and Samuels (13) suggest that the rats on the fat diet have a different metabolic picture as judged by studies of tissue slices than those previously on the carbohydrate or protein regimen.

Another variation in the response of fat as compared with that of carbohydrate is the so-called "associative dynamic action" (14). When the specific dynamic effect of protein is superimposed upon that of fat, the resulting effect is much less than that which occurs when protein and carbohydrate are fed simultaneously. Fat, therefore, possesses a sparing action on caloric expenditure which may to some extent account for some of the reactions already noted.

FAT AS PROTEIN-SAVER

A few years ago only carbohydrate was believed to have an appreciable protein-sparing activity. More recently it has become evident that fat is able to spare protein under conditions where carbohydrate is completely ineffective. Such a phenomenon was first demonstrated by Swanson and co-workers (15) at Iowa State College. When rats were fed on protein-free diets, the urinary nitrogen was maintained at the "wear and tear" level when 50 per cent of the necessary calories were supplied only if the diet contained 20 per cent fat. When the diets were supplied at the 75 or 100 per cent caloric level of the requirement, no differences in nitrogen loss were observed between the fat-low and the 20 per cent fat diets. A similar relation obtained when methionine was added to the diet. Somewhat similar results on the nitrogen-sparing action of fat diets have been reported by Schwimmer and McGavack (16) for man. Pearson and Panzer (17) have arrived at the same conclusion by another experimental approach. These workers have reported that the loss of the essential amino acids in the urine and stools was considerably reduced when corn oil was administered. The effect apparently is not to be ascribed to the unsaturated fatty acids. Finally Forbes *et al.* have found that the digestibility of protein and the retention of nitrogen were improved in the order of the increasing fat content of the diet. This effect was noted not only in growing rats (18) but also with the mature animals (19).

VITAMIN-SPARING ACTION OF FAT

Another expression of the specific nutritive power of fat is its sparing action on some of the B vitamins. The sparing effect of fat on thiamine was noted first by Evans and Lepkovsky (20) and has been confirmed by others (21, 22). Moreover, Birch (23) and others (24–26) have demonstrated a relationship between the requirement for pyridoxine and the amount of essential fatty acids in the diet. However, oleic acid has been reported to produce a growth inhibition with diets where suboptimal amounts of pyridoxal or pyridoxamine are present (27). Conversely, oleic acid has been found to replace biotin in the bioassay with *Lactobacillus casei* (28, 29), especially when used in connection with a non-fatty surface active agent, such as serum albumin (30).

Recent unpublished experiments from our laboratory (31) have given further proof that fat possesses special nutritive properties. Rats which had developed the essential fatty acid deficiency syndrome were given 20 mg. linoleic acid along with the fat-low diet until the growth curve showed a plateau. Administering a daily supplement of 60 mg. linoleic acid at this stage over a three-week period failed to cause an increase in growth, but a prompt and sharp rise in the growth curve obtained immediately on the substitution of a similarly constituted diet which contained 10 per cent cottonseed oil. There is not as yet sufficient evidence to explain the cause for this growth-stimulating effect of fat.

The beneficial effects of fats on nutrition as measured by these various indices are sufficiently pronounced that it makes one question the idea that fats are only optional components of the diet. One is forced to the conclusion that this foodstuff should be regarded as an obligatory constituent in the foods.

RELATIVE VALUE OF ANIMAL AND VEGETABLE FATS

The next question which naturally arises is the relative effectiveness of the different fats in meeting the nutritional requirements. Recent reports from several laboratories have proved that both animal and vegetable fats possess this capacity to the same extent. No differences could be noted in growth, reproduction, and lactation between butter fat, and corn, cottonseed, peanut, and soybean oils and a vegetable margarine fat when fed to rats with an otherwise complete diet (32–34).

On the other hand, the results of the von Euler group (35) can be interpreted as evidence for a superiority of margarine over butter. No differences in growth were noted on their butter or margarine diets over a 700-day period. However, the total weights of the offspring from comparable numbers of females on the two diets at thirty days were 8508 gm. for the butter group contrasted with 15,955 gm. for those animals which had been born to mothers receiving the margarine diet. In a second series of tests, the response of the butter group was somewhat improved by the feeding of α-tocopherol but, even with addition, the total weight of the offspring was appreciably less than that of the unsupplemented margarine group.

Animal and vegetable fats have been shown to have the same ranges of digestibility (34). Identical coefficients of digestibility have been found for butter and margarine on human subjects (36). Rats are able to respond equally well by an increased growth when growth hormone is injected and to restriction in calories (37) irrespective of whether the diet furnishes butter fat or such vegetable oils or margarine fat as listed above. Rats raised on a diet of skim milk powder, whole ground wheat, salt, and a vegetable margarine fat showed an improved nutritional status after ten generations (38) and have

continued to retain their health, vigor, and fertility through the twenty-fifth generation, to which point the experiment has now progressed (39).

Several Dutch workers have claimed that growth of rats is superior on diets of summer butter to that on rapeseed oil (40). They have suggested that the reason for this difference is to be traced to the presence of vaccenic acid (12-octadecenoic acid) in summer butter while this unsaturated acid is absent from vegetable fats (41). These results have not been confirmed at the laboratories of the University of Southern California (42) or those of the University of Wisconsin (43). Negative results have likewise been reported from the von Euler group in Stockholm (44).

While most of the evidence on the nutritive value of animal and vegetable fats has been deduced from animal tests, there is one recent report on children. Leichenger, Eisenberg, and Carlson (45) have noted that the growth of orphanage children on diets containing a vegetable margarine was equally satisfactory if not superior over a two-year period to that of comparable children on a butter regimen. One must state that the present evidence justifies the conclusion that vegetable fats, when fed with the fat-soluble vitamins and vitamin-fortified margarines, are nutritionally equivalent to butter and other animal fats.

ROLE OF FAT IN PRODUCING OBESITY

There is a widespread opinion that the consumption of fats is a predisposing cause of obesity. However, there is no satisfactory scientific evidence to prove this contention, and it is probably incorrect. It is a well known fact that fats are more slowly digested than other foodstuffs and that they considerably delay the emptying time of the stomach. This fact accounts for the prolonged period of satiety which follows the consumption of foods rich in fats. The net effect of high-fat consumption is to lessen the desire for food over a longer period than would have been the case if more rapidly digested foods had been consumed. An analysis of the carcasses of rats which had received diets containing widely varying amounts of fats indicated that no direct relation occurs between the fat intake and the extent of deposition of lipids in the tissues (46). These results show that the superior growth of rats on high-fat diets represents an actual tissue growth and not simply the deposition of added fat.

FAT REQUIREMENTS OF MAN

Our knowledge is quite restricted on the fat requirements of man. If we can apply the results of the experiments on rats to the human picture, then a rather generous fat intake in man is indicated. The optimum level of fat in the diet on this basis would be approximately 30 per cent by weight or 50 per cent of the calories. This level is somewhat higher than the average value of 33 per cent of the total calories assigned to fat in the American dietary (47) or the 40 per cent level which Howe (48) has given as the mean for the Army diet during World War II.

Much research remains to answer problems such as the optimum fat for man. Not only will some objective method be necessary in approaching this problem but means for incorporating fat in the most appetizing manner in the diet must be determined, and conditions under which fat may be taken in generous amounts without producing gastric distress must be investigated. The whole program is most challenging. Possibly some of the answers will come from investigations sponsored by the Army, since this group is now including fat in the Air Force emergency rations not only as a source of calories but also for other nutritional functions (49).

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Are You Worth Your Salt?

Owing to the scarcity of salt in ancient times, soldiers, officials, and working people in Greece and Rome were paid with a portion of salt. This pay was called "salarium," from which our word "salary" is derived.—*From "A Treasury of American Superstitions" by Claudia deLys. New York: The Philosophical Library, 1948, p. 239.*

The Supervisor—Past Present, and Future[1]

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THE ROLE of supervisor, a position I am certain many of you do or will fill, has changed so much in the past few decades that one of the old school, if he had not changed with the times, would find difficulty in recognizing himself. The successive periods of boom, depression, war, and these postwar years have all left their mark on the supervisor. The day of the whip-cracking driver is gone, and the day of the leader is here. The supervisor of today has many varied responsibilities, all contributing toward efficiency and productivity.

THE SUPERVISOR'S WORK

First, in a progressive organization, the supervisor is expected to know something about how to instruct the new worker, and in many cases the experienced worker, as determined by the need. In so doing, he or she must be familiar with methods of planning this instruction so that it will not interfere with the production of the unit. Provision should also be made for the instruction of understudies and rotation of personnel so that the unit will not be affected any more than a bare minimum by sickness, vacation, turnover, and so on. This also makes a bit of a planner out of the supervisor.

Then the modern supervisor, to accomplish his objectives, must know more than a little about human relations—how to handle people. This can be the nemesis of a hard worker in his own right who wants to get ahead, but whom others resent when required to work with him. Every single thing that may affect the employee's work performance becomes the business of the supervisor—the employee with the sick baby; the employee with money problems, or who can't find a place to live; the chap who imbibes a bit too much. All these become part of the supervisor's concern, because these matters affect the work performance and in turn affect production. "Without this one fault," we say, "Joe would be the perfect worker." There are few Joes, Toms, or Bills who don't create some problem. Then, in addition, there is the rather common situation of Mary not liking to work with Jane, or an employee being frequently tardy, or another who prepares to leave the work place too early at closing time. All these matters affect efficiency, production, morale, and job satisfaction of one or many workers.

The need for developing proper attitudes in human relations can be exemplified in no better way than to state that experts report that the non-use of machines due to labor disagreements cost us 20 million tons steel, 2 million automobiles, 100,000 tractors, and 135 million tons coal in the first three years after the war. There is little doubt that the development of human relations to keep pace with technological growth must become one of the main objectives of American industry, and this development must permeate the *whole* organizational structure to be truly successful. The humanities of business have become, if not *more* important, certainly *as* important as the techniques.

Unquestionably, a supervisor who can handle people is a great asset to his organization. A point to add is that frequently a natural gift of ability to handle people is found among supervisors who have had limited educational opportunities, in comparison to some of their college-trained brethren.

The modern supervisor is also often held responsible for developing job requirements for the positions in his charge. In many cases, the job requirements must be written. No one can deny that the idea of the supervisor and the worker having a common understanding of what is expected for adequate work performance is a fine idea. Ample efforts along these lines early on the job may save hours of grief later. There is no more objective manner to point out shortcomings than by a comparison of job requirements, that have been set down on paper, with an evaluation of the employee's actual performance.

How about the unit orientation? Who is going to tell the new employee about the purpose of his job, the hours of work, the background of the organization, and his own contribution? Any reflection on the

[1] Presented before the Junior Greater New York Dietetic Association on November 2, 1948.

slogan, "A well-informed employee is a good employee," should stimulate a conscientious supervisor to start off on the right foot with the new employee. This, then, is another responsibility for the modern supervisor.

There are often grievance procedures to follow, insuring the employee a fair hearing and just consideration on some condition affecting his work with which he is dissatisfied. Many organizations have a very liberal attitude toward allowing employees to air complaints and grievances. The first step in any good grievance procedure would usually be for an employee to contact his immediate supervisor.

Then there is the old problem of discipline. There are times, if we are to be realistic, that the big stick has to come into play, but we must be sure to use it as a last resort. When necessary, however, the supervisor must invariably initiate the action.

Then we come to such matters as efficiency in the section's business. Inventories should be made periodically to see if there might be an improved way of performing some activity, for example, to reduce steps and distances traveled, or cut down on waiting and delays.

A Job Methods (1) program developed during the war has in many places given way to *Work Simplification*, a course which is devised specifically for the use of the first-line supervisor, though usually coordinated by a person in top management. Three tools, in particular, are presented in training sessions. These are: the Work Distribution Chart, the Process Chart, and the Work Count. During the first year of work simplification in the Veterans Administration, there was a national saving of over 4 million man-hours of work. The Director of the Budget has been responsible for putting this program into effect in all federal agencies. There are many large companies which are using a like program with great success, for example Marshall Field and Company in Chicago and General Foods.

The most efficient and effective work simplification program is one that comes from the workers themselves. The more improvements that come from employees themselves, the less resistance there is to change.

In brief, a plan of work simplification in the final analysis will make everyone's work easier and thereby contribute to the goal of greater job satisfaction to all concerned. These analyses and the work of stimulating cooperation for such a program on the part of employees are also a part of the present day supervisor's responsibility.

SELECTING AND TRAINING THE SUPERVISOR

Since the modern supervisor must assume these many added responsibilities, it is necessary that the choice of a supervisor be made with these facts in mind. All too often, in a growing organization, the person is chosen as supervisor who has worked in the section the longest time, even though he may not possess any of the qualifications for a supervisor. This individual then becomes the type of supervisor who continues doing the job he had before his promotion and spends almost no time in actual supervision. Is it any wonder, then, that problems start to appear, and the supervisor is the last one to acknowledge that if the situation had been recognized and action taken earlier, perhaps it would never have reached the problem stage?

Immediately before and during World War II, it was necessary to train many people in a very short period to assume tasks with which they were totally unfamiliar, for example, in the airplane industry where people were taken from the farms to become airplane factory workers. Certain courses were developed called "package courses" which served this purpose admirably. This program of the "package course" met with such success that England adopted the plan and is using the program in her attempts to step up production since the war. These "package courses" were developed by men in our industries and government and were part of the War Manpower Commission's training plan. They were and still are being used to great advantage in and out of government. The courses were usually given to first-line supervisors in helping them find a safe, foolproof method to develop their supervisory skills. Two courses in particular have met with great success:

Job Instruction Training (2), with the well known four-step method of instruction and the slogan, "If the employee hasn't learned, the supervisor hasn't taught."

Job Relations Training (3), which gives a methodical way to solve a problem in the unit, also in a series of steps, and demonstrates the human approach as the approach which achieves maximum production.

Two handy little cards actually constituted the texts for these courses, and the supervisors proved by group demonstratons that they were aware of the objectives. These demonstrations served to illustrate to many that the goal was not easy to attain, simple though it appeared.

FUTURE REQUIREMENTS FOR SUPERVISORS

We might give thought to the fact that supervisory training may be about ready to enter a new phase of development. The requirements during the war showed the need for trained first-line supervisors. Although the short "package courses" met with slight criticism in some quarters, there is no doubt that they showed the relationship between the supervisor and efficient production, morale, and so on, in the operating unit, and the need for adequate training in this relationship.

Future supervisory training will no doubt place greater emphasis on the basic knowledges and skills

of individual and group leadership. You, as supervisors, will probably in time be required to become trained group leaders, if you find yourselves in a progressive organization, for management must realize that only through proper leadership can the required cooperation and participation of the group be attained.

Supervisors must eventually understand that despotic domination of employees will aid production, only at a relatively low level. It will take the proper understanding of the principles of good relations to raise production to the highest point.

Future supervisory training may well include methods for making supervision more of a cooperative venture with both the supervisor and the employee working in unison toward a common objective. As supervisors, we must all endeavor to develop into competent group leaders who will seek ways to encourage employee participation in the leadership of the work group.

EMPLOYEES' NEEDS

There are certain basic needs that each employee must meet in order to maintain the highest degree of efficient production continuously. One of these basic needs is a sense of *belonging*. Among the key groups for which one feels a need is a work group. The development and maintenance of work groups is the responsibility of first-line supervisors in particular, so that the worker's basic need for belonging can be fulfilled.

Another basic need of the worker is a sense of individual importance through *recognition*, through being seen as a distinct individual. Where this need is ignored, not only production suffers but personality problems will develop. The worker must feel that his supervisor is interested in *him*.

Still another basic need might be that of *security*. Security is more than job tenure. We might classify it in two categories: (a) financial, and (b) emotional. Employees develop a feeling of insecurity when they find the existence of favoritism, poor placement, or poor administrative policy, and when they recognize a lack of training and a lack of job clarification. Under these conditions individual and group morale will just about vanish, and antagonisms will develop among employees. The good supervisor, as a leader in maintaining high production, concerns himself with employee security.

How about the need for employee *development?* The most effective stimulus for continued work improvement is success. We must give the employee the chance to improve himself through added responsibilities, job rotation, advice on outside study, and so on. The selection of development aids for the employee requires skilled judgment on the part of the supervisor.

TRENDS IN INDUSTRIAL RELATIONS

We must strive for democratic work groups. The principles of democratic group action are of vital interest to any organization where production is important. Future supervisory training will aim toward this objective.

Staff and unit meetings will be encouraged. Information from top management will be widely disseminated. Employees will be made to feel an important part of production. Every effort will be made to develop management from the bottom up.

A fair exchange of ideas will be encouraged, with suggestions from the worker, as well as from management. The democratic organization must exist in fact as well as in name, because through it we will attain the highest level of production.

Ample evidence to these facts may be found in studies, such as the famous Hawthorne Study developed by Harvard University, Massachusetts Institute of Technology, Rockefeller Foundation, and Western Electric Company. Proof may be found in the experiments of the so-called "Scanlon Plan" at the Adamson Company of East Palestine, Ohio, and at the La Pointe Machine Tool Company of Hudson, Massachusetts. Then there is also the splendid article in *Colliers* of November 15, 1947, called "Revolution on the River Rouge," later condensed in the *Readers' Digest*. Henry Ford II, the article states, relies to a large extent on the findings of an employee attitude survey in his delving into Ford's labor relations problems. The survey indicated that there are four basic things that every American worker wants, and I quote from this article:

"First, a sense of security. Second, an opportunity to advance. Third, to be treated like a human being rather than a number on the payroll. Fourth, a sense of human dignity that comes from feeling that his work is useful to society as a whole. Satisfy these four needs for your workers, and you have the recipe for smooth labor relations."

It is along these same lines that we, as supervisors, must prepare for our own supervisor-worker relations.

TRENDS IN SUPERVISOR-WORKER RELATIONS

At a personnel conference of the American Management Association in Chicago, Marvin A. Heidt, Vice President in Charge of Industrial Relations, Bendix Aviation Corporation, spoke on "Cooperation Between the Foreman and the Worker." Mr. Heidt stressed some points of interest. He said, "Our Bendix training program does not end with indocrination. We must see to it that our supervisor grows and develops. We must see to it that he knows his responsibilities, not only to the company but to the worker as well. Certainly the supervisor is entitled to all the help we can give him to obtain the fullest cooperation. Management ability cannot be acquired overnight. It must be learned just like any

skilled trade or profession, for no man is a born manager, any more than a man is a born tool maker. He may have inherent mechanical ability that provides the background for training as a tool maker. Likewise, some people have inherent abilities for getting the best possible cooperation from others. These are management material. But the inherent abilities must be developed and developed by sound and practical training."

We may well conclude that the future supervisor must be prepared to take the initiative in the role of a group leader and to seek ways to prevent problems from materializing. To accomplish this, he must of necessity fortify himself. These aspects will have great bearing on supervisory training of the future.

Such precepts as the four foundations of supervisory leadership already mentioned—*recognition*, *security*, *belonging*, and *development*—must be constantly kept in mind by the supervisor in dealing with his workers and in *preventing* problems. In this way, production and efficiency in the unit will be maintained at an even keel, thus eliminating the valleys that appear on the unit's production chart due to problems that are in the process of development, or worse still, are awaiting solution.

SELECTING SUPERVISORS

An excerpt from an article by Dr. Richard S. Schultz (4) of Industrial Relations Methods Inc., which appeared in *Supervision* is indicative of the trend for the future: "Since the supervisor's role is so vital in the organization, the search for potential supervisors must necessarily be approached well in advance, before the needs of the organization become apparent." One way to accomplish this could be through an understudy system, where each supervisor develops an understudy to take over in his absence. Still another method might be through a planned program of training for potential supervisors, after a careful search for candidates. Those who indicate a favorable response to the training might be considered for actual placement at the opportune time. To return to Dr. Schultz, "In time it would appear that a definite procedure making use of examinations, interviews, apperception and appitude tests, will be used for this purpose of selection." (There is now a strong movement in some of our larger corporations in this direction.) "A person does not become a supervisor at the time he is merely given the title or appointed to the position. It is necessary to undertake a systematic program of finding among the rank and file of personnel those who have potential supervisory capacity."

It is not difficult for astute management to recognize that since the first-line supervisor is the strongest bond between management and the worker, it behooves management to make this bond a strong one by a wise selection of supervisors.

NEED FOR SELF-ANALYSIS

There is little doubt that in the future the supervisor must prepare himself to a greater extent, if he is to demonstrate the skills inherent in good supervision. Management must assist him in acquiring the "know how" after proper selection of supervisory material is made. Final responsibility for success on the job, however, will to a large measure rest with the individual supervisor. Evaluation will require self-analysis and personal inventory to be sure the skills acquired and mastered are used to their fullest.

The story is told about a handy man who walked into a corner drug store one morning to make a phone call. The phone was hanging on the wall, and the clerk overheard this conversation:

"Is this Mrs. Brown? I hear you need a handy man at your place. Oh, you've got a handy man. Are you satisfied with him? Oh, you are."

Then the man hung up the receiver. The clerk said, "Why, Mac, I thought you worked for Mrs. Brown." Mac replied, "I do."

"Well," asked the clerk, "why were you calling her then?"

"Just checking up on myself," said Mac. "Just checking up."

We, like Mac, can "just check up on ourselves" once in a while, by taking a personal inventory. It is a good practice we cannot start too soon. Our supervisor of the future must acquire the habit of self-analysis early in order to become a truly successful group leader—a goal worth attaining if for no other reason than to make the supervisor's own lot easier.

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Niacin Content of Cereals and Legumes[1]

As Determined by Two Methods of Assay

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IN THE present study values for the niacin content of cereals and legumes obtained by microbiologic assays were compared with those obtained by the chemical method based upon the König reaction (1) as modified by the author (2). During the investigation some interesting observations were made in view of the recent evidence that these groups of natural materials contain a precursor of niacin.

Kodicek (3) first observed that the values for the niacin content of cereals depended upon the methods of extraction and hydrolysis. He found that direct alkaline and acid hydrolysis of a Goldberger diet and yellow corn meal resulted in a higher concentration of substances which react with cyanogen bromide and amine than aqueous extracts of the same material. That the increased values were not due to non-specific amine-reacting substances is indicated by the fact that he included the amine in the blank. On the basis of these observations, Kodicek concluded that the values obtained in the aqueous extracts represented the "true" or "active" vitamin, while the increase after direct alkaline and acid hydrolysis was due to the liberation of some unknown substance which was more strongly bound.

Similar observations were soon reported from other laboratories. In their original description of the microbiologic method, Snell and Wright (4) found that the values for the niacin content of cereals were related to the method of extraction and hydrolysis. Direct alkaline extraction of cereals, in contrast to animal tissue, gave higher values than those obtained when the microbiologic assay was carried out on aqueous extracts. These investigators attributed the higher values to incompleteness of extraction since they found that finely ground samples gave comparable values by both extraction procedures.

Higher values were also found following alkaline extraction of wheat flour, bread, and rye by Melnick, Oser, and Spiegel (5). They showed that the increased values were due to hydrolysis rather than extraction, since alkaline hydrolysis of aqueous extracts of these cereal products gave values similar to those found with direct treatment. Thus, they assumed that hydrolysis increased the availability of some water-soluble derivative or "precursor" of the vitamin to the test organism.

Evidence of a hypothetical precursor of niacin in cereals as opposed to animal tissue was soon reported by other groups of investigators. Teply, Strong, and Elvehjem (6) found from 20 to 40 per cent increase in values for whole wheat after direct acid and alkaline hydrolysis as compared with those obtained with aqueous extraction.

Andrews, Boyd, and Gortner (7) confirmed the observation of Melnick *et al.* (5) that the precursor was water soluble. They found that alkaline hydrolysis (*p*H 8.0) of clear aqueous extracts resulted in the same values as direct alkaline extraction. Similar results were obtained with strong acid hydrolysis, 3 N hydrochloric acid. However, mild acid treatment, 0.1 N sulphuric acid, did not increase the values over those resulting from aqueous extraction.

A study of the comparison of niacin values obtained for animal and plant tissues after enzymatic treatment, as well as subsequent acid and alkaline hydrolysis of the clear extracts, has been reported by Cheldelin and Williams (8). Digestion with taka-diastase and papain completely liberated the vitamin as shown by similar values obtained after hydrolysis of tissue and clear extract. Again, how-

[1] This is a portion of a thesis entitled "The Chemistry of the Pyridine and Pyridinium Compounds as Related to the Chemical Determination of Nicotinic Acid and Its Derivatives," which was submitted as partial fulfillment of the requirements for the degree of Doctor of Philosophy, Department of Home Economics, University of Chicago. This work was conducted in the Department of Physiology, Northwestern University Medical School, Chicago, and was supported by grants from the Clara A. Abbott Fund of Northwestern University and the Nutrition Foundation, Inc., New York City. Received for publication August 17, 1949.

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ever, it was noted that a soluble substance present in the enzyme (trypsin) digest of whole wheat, as opposed to a similar digest of animal tissue, was rapidly hydrolyzed by treatment with alkali at pH 8.0 to 8.5. The increase in value was from 37 to 62 mcg. per gram. Mild acid treatment with 0.25 N hydrochloric acid did not increase the value over that obtained with enzymatic treatment alone. The authors concluded that the increased values were due to the hydrolysis of a precursor to niacin, since comparable results were obtained by both the chemical and microbiologic methods.

EXPERIMENTAL PROCEDURE

Fifteen samples of cereals, including one sample of enriched bread, and ten samples of legumes were used.[3] All the samples had previously been prepared for analysis by grinding to the consistency of meal or flour.

Assays for niacin were made on the twenty-five samples by both the microbiologic and chemical methods. The microbiologic assays were carried out according to the procedures of Snell and Wright (4). The samples were digested with 2 N sulphuric acid in a water bath at 100°C. for 90 min. The digests were neutralized with sodium hydroxide and suitable dilutions taken for assay.

Chemical assays were carried out on clear, neutral filtrates prepared from alkaline and acid digests of each sample. Two series of four samples, duplicate unknown and duplicate recoveries, were hydrolyzed in a water bath at 100°C. for 90 min. with calcium hydroxide suspension and 2 N sulphuric acid, respectively. The digests were clarified by means of zinc hydroxide precipitation according to the procedure of Friedemann and Barborka (9).

The chemical method was based on the König (10) reaction of the pyridine ring with an aromatic amine in the presence of cyanogen bromide. Optimum conditions as determined by the author (2) were observed for the completion of the two reactions involved and the stability of the resultant compounds, namely, the formation of the intermediary quarternary ammonium base, N[1]cyan nicotinic acid bromide, and the cleavage of the pyridine ring with

[3] Furnished through the courtesy of the experimental laboratories of Quaker Oats Company and the American Institute of Baking, both of Chicago.

TABLE 1

Comparison of the chemical and microbiologic methods for assay of niacin in cereals and legumes

MATERIAL	NIACIN				
	Chemical assay method		Microbiologic assay method		
	Calcium hydroxide	2 N sulphuric acid	2 N sulphuric acid	Range	Number of assays
Cereals					
	mcg./gm.	*mcg./gm.*	*mcg./gm.*	*mcg./gm.*	
Flour, whole wheat	53.0	56.0	50.2	43.8–62.2	12
Flour, red dog	79.7	80.4	79.6	75.0–86.6	7
Flour, hard wheat	12.4	13.2	12.8	11.5–13.0	13
Flour, soft wheat	8.0	9.0	6.9	6.2– 7.7	7
Flour, enriched	38.2	44.4	44.0	42.5–45.0	5
Bread, enriched	38.0	39.2	36.7	35.6–39.2	8
Flour, rye, No. 1	5.0	5.0	5.7	4.4– 6.9	7
Flour, rye, No. 2	6.6	7.9	7.9	6.2–10.1	7
Flour, rice, No. 1	17.2	14.3	14.6	11.5–17.5	11
Flour, rice, No. 2	32.3	32.0	29.7	25.6–36.8	22
Flour, oat	7.3	7.4	6.7	5.5– 7.2	11
Corn, white	18.3	17.1	12.1	10.0–13.7	7
Corn, yellow	12.3	13.7	11.5	10.6–13.1	6
Corn, grits	8.1	8.4	9.0	8.1–10.0	7
Barley, pearl	25.3	25.9	25.7	19.3–31.0	23
Legumes					
Soy beans, extracted, No. 1	18.0	21.1	22.7	21.0–25.8	15
Soy beans, extracted, No. 2	18.0	22.5	23.7	21.0–25.6	6
Soy beans, undenatured	18.5	28.3	25.3	23.8–30.0	14
Soy beans, expellor	14.8	20.5	17.8	15.7–19.1	7
Yellow pea meal	26.5	29.8	31.8	26.0–36.8	6
Peas, cow	22.6	23.9	23.9	20.0–27.5	7
Beans, Great Northern	17.3	19.4	21.2	18.0–25.8	15
Beans, Navy	19.4	20.4	22.3	20.4–26.7	19
Beans, red kidney	19.3	27.4	24.4	19.5–32.8	20
Beans, red	25.6	27.0	27.9	26.0–29.9	7

the formation of the yellow glutaconicdialdehyde derivative. The secondary amine, p-methyl-aminophenol sulphate, was used in the cleavage reaction. Photometric density of the glutaconicdialdehyde derivative was measured on the Evelyn colorimeter with filter 400.

RESULTS AND DISCUSSION

The values in micrograms per gram obtained by the chemical assay of alkaline and acid digests and microbiologic assay of acid digests of the twenty-five samples are presented in Table 1. The range in values obtained with the microbiologic method, as well as number of assays by this method on each sample, are included. For purposes of comparison and discussion, these materials have been divided according to their botanical classification into (a) cereals derived from grasses and (b) legumes. The data for the chemical method represent means of from two to four individual analyses. Duplicate recoveries were run on each sample. The mean recovery of thirty-two analyses was 20.53 ± 0.10 expressed as micrograms of niacin equivalent to 1.000 L_{400},[4] or unity, with a standard deviation of 0.56 mcg. The niacin equivalent of unity in pure solution was equal to 19.5. Thus the mean percentage recovery of niacin was 95 with a standard error ± 2.

The results of chemical and microbiologic assays of the 2 N sulphuric acid digests of both cereals and legumes agreed within the range of experimental error of the microbiologic method, i.e., ± 10 per cent. For example, the mean value of twenty-three analyses of pearl barley was 25.7 mcg., with a range of from 19.3 to 31. The mean value for this sample by the chemical assay of the acid digest was 25.9 mcg., approximately the median of the range of observations by the microbiologic method, as was true, for the most part, in these two series of values. However, in some instances, for example, No. 4, the mean value by the chemical assay was slightly higher than the highest value obtained by the microbiologic method.

The results obtained with the chemical method following mild alkaline hydrolysis of the cereals, likewise, were in agreement with the chemical and microbiologic assays of acid digests. On the other hand, the results of the chemical assay of alkaline hydrolysates of the legumes were consistently lower than the values obtained by both chemical and microbiologic assays of the acid digests of this group.

That these differences were not due to experimental error was indicated by the fact that any one series of analyses included both cereals and legumes.

[4] $\frac{\text{Micrograms of added vitamin}}{L_{400}} = 1.000\ L_{400}$ equivalent of niacin. $L_{400} = 2 - \log G$, in which G is the observed galvanometer reading when the blank is set at 100 on the galvanometer scale.

TABLE 2

Confidence limits for population mean values of the three series of analyses

METHOD	CONFIDENCE INTERVALS
Chemical	
Calcium hydroxide suspension	18.43–21.57
2 N sulphuric acid	22.44–25.58
Microbiologic	
2 N sulphuric acid	22.53–25.67

Further, classification into botanical groups was made after the analyses were completed and a definite pattern noted in the non-conformity of the values resulting from assay of alkaline digests with those obtained following acid digestion.

A statistical analysis[5] of variance of the means of values in the three series of assays of the cereals showed no significant difference at the 5 per cent probability level. On the other hand, a similar analysis of variance of the mean values obtained for the legumes showed a highly significant difference between the three series at the 1 per cent probability level. Confidence limits for the population mean values for the series of assays of the legumes were obtained at the 5 per cent point. These results are presented in Table 2. The confidence intervals for the population mean values of both chemical and microbiologic assays of 2 N sulphuric acid digests were practically identical, while the highest limit of the calcium hydroxide series was below the lowest of the other two, indicating a significant difference between the results of the chemical assay of the calcium hydroxide hydrolysates and those obtained by both the chemical and microbiologic methods after 2 N sulphuric acid digestion.

The lower values following alkaline hydrolysis were surprising in view of the observations of Andrews *et al.* (7), Cheldelin and Williams (8), and Krehl, Strong, and Elvehjem (11). These groups of investigators found that the precursor of niacin present in cereals was water soluble and was rapidly and completely hydrolyzed to the vitamin with mild alkaline treatment. Thus it would seem that, if the higher values obtained after 2 N sulphuric acid hydrolysis of the series of legumes included in the present study represent this "precursor," it is more firmly bound in the case of this group of natural materials and requires more drastic hydrolysis procedures for liberation; or, that there is present in legumes some other derivative or precursor of niacin which is converted to the vitamin more readily by acid treatment.

SUMMARY AND CONCLUSIONS

No statistically significant difference in the values obtained by chemical and microbiologic assays

[5] The author wishes to express her appreciation to Dr. T. A. Bancroft, Director, Statistics Laboratory, Alabama Polytechnic Institute, for the statistical analysis of the data.

of 2 N sulphuric acid hydrolysates was noted for the niacin content of cereals and legumes.

The mean values resulting from chemical assay of calcium hydroxide digests of cereals did not differ significantly from the series of assays of this group by the microbiologic method.

The mean values for the niacin content of legumes by chemical assay following mild alkaline hydrolysis were significantly different, as determined by an analysis of variance, from those resulting from chemical and microbiologic assays of acid hydrolysates.

It has been suggested that if the increased values of niacin found in legumes with acid hydrolysis is due to a "precursor" of the vitamin, this precursor is more firmly bound, or that some other precursor or derivative of niacin is present in this group of natural materials which is converted to the vitamin more readily by acid treatment.

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What Is Enriched Rice?

Enriched rice is polished rice to which thiamine, niacin, and iron have been added (riboflavin, because of its yellow color, is usually not used). Enriched or converted rice is widely available, although generally speaking the southern states of Alabama, Florida, Georgia, Louisiana, the Carolinas, Texas, and California, as well, use the largest amounts.

Enriching is done in several ways. The most feasible at present seems to be the preparation of a pre-mix (white rice to which vitamins and iron are added). The grains are impregnated with the enrichment materials and coated with an edible film-forming substance. This coating protects the vitamins against deterioration and prevents substantial losses during washing. Concentration of vitamins in the pre-mix is 1 mg. thiamine and 13 mg. niacin per gram. This vitamin-impregnated rice is then added to ordinary polished rice, using one part impregnated rice to 200 parts polished rice. The final product distributed to the consumer has the vitamin content of high quality brown rice, and the impregnated grains are not distinguishable from the unenriched when they are mixed together. The flavor and cooking quality does not seem to be affected by the process.

So-called converted rice is essentially parboiled before hulling. Compared to commercial brown rice, converted rice contains 85 per cent as much thiamine and niacin and 70 per cent as much riboflavin. The final product is not coated and is slightly yellowish, but when cooked it is practically as white as ordinary rice. The raw kernels look rather translucent. It is interesting that experiments have shown that converted rice is unattractive to weevils, who seem to prefer a chalky white rice. The converted rice apparently can be packed and shipped more successfully than polished rice, with less breakage.

Methods of cooking are also important in conserving nutrients in rice. Experiments have shown that the common practice of cooking rice in a large quantity of water which is later drained off and the cooked rice rinsed again causes tremendous losses of the vitamins, protein, and phosphorus. The double boiler method of cooking rice in a small volume of water is an acceptable practice since it makes it easier to avoid burning and has the added advantage of conserving the nutrients which might otherwise be discarded in the cooking water. Nutrients are conserved best if only as much water is used as the rice can absorb during the cooking.—*Marguerite L. Pettee, Chairman, Community Nutrition Project # 2, 1947–48, on on "Consumer Education on Enriched and Fortified Products."*

Editorial

Phyllis Dawson Rowe
1898-1950

To one whose contact with The Johns Hopkins Hospital extends from 1919, the epochal development of its Dietary Department stands as a monument to the self-effacing and unselfish devotion and efforts of Phyllis Dawson Rowe. Born in Boston and graduated from LaSalle Seminary, Auburndale, Massachusetts, Miss Rowe entered the Dietary Department of The Johns Hopkins Hospital as a student dietitian in September, 1919. Upon completion of her training, she went for a brief period to Sinai Hospital in Baltimore. She then returned to The Johns Hopkins Hospital as Assistant Dietitian. In 1922 she was made Head of the Dietary Department.

At that time, the training of student dietitians was in its infancy at Hopkins, as elsewhere. Such training offered little in addition to long hours of practical work. Classes, lectures, ward rounds for students were unheard of. Over the years under Miss Rowe's capable guidance and inspiring leadership, a School of Dietetics emerged from a department which in the past had been devoted to hospital service rather than to the training and teaching of students.

The course at Hopkins was one of the first approved courses of a year's duration. Under Miss Rowe's direction it expanded from three months to six, from six to nine, and finally to a twelve-month period of post-graduate training. The Hopkins school, too, was one of the earliest to require a bachelor's degree for entrance. These standards were soon accepted by other training courses through the United States.

Through Miss Rowe's effort, and in spite of personnel shortage of the war years, Hopkins was the first civilian course to cooperate with the Army in the training of dietetic interns during World War II. From 1942 to 1945, the interns received the first six months of their training at The Johns Hopkins Hospital. The final six months were completed at Army hospitals elsewhere.

Another invaluable contribution sponsored by Miss Rowe was the training of Red Cross diet aides during the late war. Hopkins helped to inaugurate such a training program in the Eastern Area. For four years, diet aides who were trained at Hopkins contributed their services to this hospital and others in Baltimore.

Opportunities for improving the curriculum and extending the experience and education of the staff and students are constantly sought by an able director of an effective organization. Students in the course at Hopkins were kept abreast of the newer knowledge of nutrition by participation in weekly seminar discussions. Staff members were encouraged to attend and participate in professional meetings both local and national. Concern for the development of her younger staff members was always uppermost in Miss Rowe's thoughts. Her interest was genuine. It was that of an intelligent parent, now prodding, now encouraging, as occasion demanded. Experienced staff members were aided in their advancement. Advantages and recognition that came her way were shared generously. A less able and less noble administrator might have monopolized these for personal gain and aggrandizement.

Miss Rowe had a penchant for selecting and developing competent assistants. To them she delegated both responsibility and authority. Her inherent quality of generosity enabled her to let each one receive full credit for successful achievement. Her guidance was so skilled as to be imperceptible, and she and her staff enjoyed a comradeship possible only through union in the same high endeavor.

She had rare human consideration for every member of her department and the even rarer ability to instill that quality in those closely associated with her. She gave freely and graciously of her time in helping to solve the problems of others. Regardless of the pressure of work, she was always available to whoever knocked at her door.

By example and guidance she inspired both her staff and students to strive for superior standards of personal and professional conduct. Inspired, her staff gave willingly and generously of time and energy to attain the goals she had the vision to create and the patience and foresight to work for.

Her friends were legion. In their hearts and in the hearts of her students and staff, whose lives she so profoundly influenced, the memory of Phyllis Dawson Rowe will live forever.—*Ernestine Becker McCollum, Associate Professor, The Johns Hopkins University, Baltimore.*

Current Comment

SUGGESTED OBJECTIVES FOR THE GRADUATE PREPARATION OF NUTRITIONISTS FOR THE PUBLIC HEALTH FIELD

ELDA ROBB, PH.D.

Chairman, Subcommittee of the Joint Committee of the American Home Economics Association and American Dietetic Association[1]

For the past fifteen years or more a Joint Committee of the American Home Economics Association and the American Dietetic Association, with varying membership, has been engaged in considering problems of qualifications, functions, and preparation of nutritionists for the field of public health. The first report on qualifications was made in 1938, revised in 1941, and again in 1945. General recommendations were also made in 1945 for the undergraduate preparation of nutritionists.

Heads of college departments, however, asked for more specific help in setting up curricula. The Committee, therefore, about five years ago, began a study which was to serve as a basis for the formulation of standards for professional preparation. Questionnaires were sent to a selected but representative group of nutritionists. The questions asked were designed to obtain information from each nutritionist regarding:

(a) The nature of her work, including duties and personnel practices.

(b) Her education and training—with an evaluation of its adequacy and recommendations for the educational preparation of nutritionists now entering the field.

(c) Her previous experience before entering the field—with an evaluation and recommendations for types of experience most valuable for the prospective nutritionist.

Answers to this questionnaire were summarized and reported by Addiss and Heseltine (1). The Committee then undertook to prepare more specific suggestions for the preparation of nutritionists.

Three groups of people are vitally concerned with this problem of professional preparation:

(a) The college staff offering the program.

(b) The student preparing for the field.

(c) The prospective employer.

[1] Members of the Subcommittee are: Adelia M. Beeuwkes, Bertlyn Bosley, Helen A. Hunscher, Florence MacLeod, Nelle Sailor, Alice H. Smith, and Elda Robb, Chairman.

The preparation of the nutritionist would seem to be primarily the concern of the *graduate* school. No specialized preparation is suggested at the undergraduate level. It is hoped, however, that colleges will offer courses which will give a strong foundation for future graduate work, and that they will offer some opportunity for the student to become acquainted with the field of public health nutrition.

In developing the graduate program, it would be desirable to have the cooperation of a school of home economics, a school of public health, a school of social work, and a school of public health nursing—with community agencies providing field experience paralleling and following academic study. Few places can provide all these facilities, however. Even if the facilities are available, their full use may be prevented by lack of interest on the part of the administration, or by difficulties encountered in the scheduling of classes in schools.

There is value in having the nutritionist obtain at least part of her training with other public health workers. It broadens her understanding of the field and aids in acquiring fundamental attitudes toward staff relationships and teamwork techniques.

FIELD WORK

The term "field work" has a variety of meanings. At its best it is an indispensable part of every program. At its worst it may be only casual observation from which the inexperienced student learns little or nothing. It is important that the field experience paralleling and following the year of graduate study be carefully planned by the college and the cooperating agency, and that it be supervised by an experienced nutritionist. The field experience should provide the student with opportunity to carry increasing responsibilities and to have her work evaluated and constructively criticized.

The Committee hopes that the following report will aid colleges in developing graduate programs in public health nutrition. The suggested objectives are in no way to be thought of as requirements for graduate study. Each college can be expected to develop its program in ways most practical for its situation.

BASIC ASSUMPTIONS

(a) That students entering the program will have a baccalaureate degree in home economics, or the equivalent. (One equivalent might be an under-

graduate major in the sciences plus later work in foods and nutrition.) Undergraduate courses should have included physiology, organic and physiological chemistry, bacteriology, psychology, economics, sociology, and the usual courses included in a foods and nutrition major.

(b) That students will have had some paid experience in a field related to home economics, such as community health, dietetics, teaching, or extension work. Exceptions to this may be desirable.

(c) That the student will have some aptitude for the field, i.e., ability to work with people and a certain maturity in attitude and understanding.

(d) That in planning the student's program for graduate study, consideration will be given to undergraduate specialization and previous experience, as well as to individual needs, interest, and goals.

(e) That graduate preparation will include a minimum of one college year of academic study and that some field experience will be incorporated in the course work. In addition to the year of study, it is recommended that two months' full-time, supervised field experience be included.

(f) That the following objectives include more than the average student can accomplish in one year of study. Some areas may have been covered in undergraduate preparation and others in previous experience; still others may be developed with experience on the job.

GENERAL OBJECTIVES

(a) To acquire sound, up-to-date knowledge in the field of foods and human nutrition.

(b) To become thoroughly acquainted with modern public health programs and practices—and their relation to general welfare.

(c) To develop an appreciation of the place of nutrition in the total health program.

(d) To develop an awareness of the importance of human relationships; the motivation of human behavior; and methods of working effectively with individuals, families, and groups.

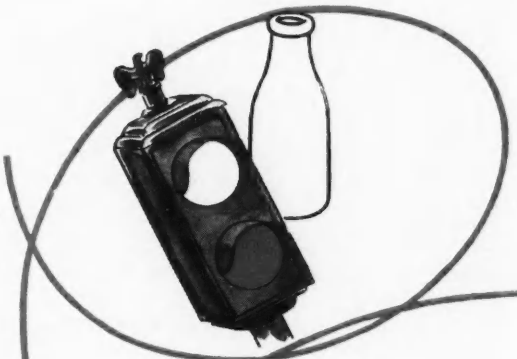
(e) To develop some ability to function as a nutritionist in a health agency.

These objectives may be attained through content of courses, conferences, personal contacts, observation, field experience, or through other facilities which the college may have at its disposal.

AREAS OF STUDY—SPECIFIC OBJECTIVES

I. Nutrition
   - A. To know and be able to interpret the basic facts of normal human nutrition, including:
     1. Nutritional need at all age levels and periods of stress.
     2. Nutritive value of foods.
        - a. Contributions of various food groups.
        - b. Food production,§ distribution, and sanitary control.
        - c. Food preparation, service, and methods of preservation.
     3. Factors which affect food selection:
        - a. Available food supply.
        - b. Relative costs and family resources.
        - c. Cultural patterns.
        - d. Psychological meaning of food.
   - B. To understand some of the basic principles and techniques used in nutrition investigations, and to be able to evaluate and interpret them.
   - C. To understand the principles and current practices of diet therapy.
   - D. To know about group feeding programs—school lunch, hospitals, nursery schools, homes for children and the aged, convalescent homes, and industrial feeding—including:
     1. Ability to evaluate programs for nutritional adequacy, educational value, and efficiency and economy of operation.
     2. Knowledge of sources of expert advice on technical matters.
   - E. To appreciate the possibilities for the nutritional improvement of life for the individual, the family, community, nation, world.

II. Public health
   - A. To become familiar with the field of public health and programs developed by official and voluntary agencies at local, state, federal, and international levels:
     1. Philosophy and purpose.
     2. History, development, legislation, and current trends.
     3. Organization, administration, and programs.
   - B. To understand the functions of those divisions and services of a health agency of which nutrition is a part:
     1. Maternal and child health, including services for crippled children.
     2. Public health nursing.
     3. Health education.
     4. Environmental sanitation.
     5. Communicable disease control, including tuberculosis.
     6. Industrial hygiene.
     7. Dental health.
     8. Mental health.
     9. Adult hygiene, including chronic disease control.
     10. Hospital licensure and consultation.
   - C. To recognize the importance of teamwork and the interrelationships between departments of an agency.
   - D. To appreciate the place of nutrition in the total health program—history, development, and current trends.



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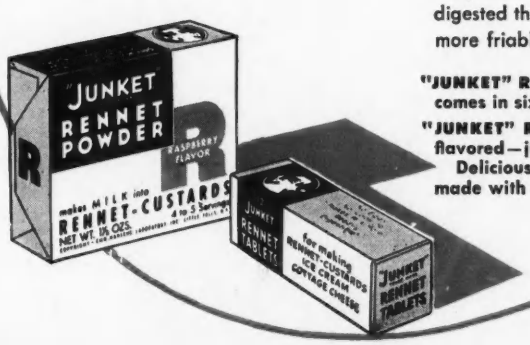

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III. Social welfare and community organization
  A. To become aware of the basic social forces in communities and their relation to health.
  B. To become acquainted with community resources and organization for social welfare.
  C. To understand the philosophy and practice of social welfare.
    1. Public assistance, insurance, social security, and other programs.
    2. Private welfare agencies.
    3. Relationship between the programs of public and private welfare agencies.
    4. Standards of assistance.
      a. Scientific and technical criteria.
      b. Individual application of standards.
      c. Psychological meaning of money.
      d. Legal aspects.
  D. To understand the role of the home economist and the nutrition consultant in social welfare.
IV. Education
  A. To be aware of trends in:
    1. Nursery schools, elementary and secondary schools.
    2. Teacher training institutions.
    3. Adult education programs.
    4. Programs for youth groups.
  B. To understand the respective functions of health education and school health services.
  C. To understand the relationship of the public health nutritionist to the educational system at state and local levels.
  D. To be able to work with teachers, supervisors, administrators, school health and school lunch personnel in developing sound nutrition education programs.

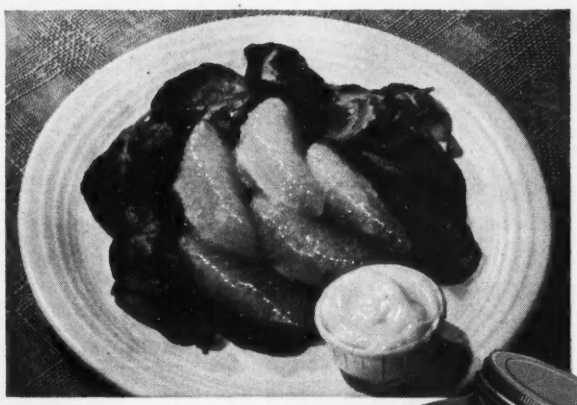
THE NUTRITIONIST IN A HEALTH AGENCY—SPECIFIC OBJECTIVES

I. To develop ability to plan, organize, and carry on services that make nutrition an integral part of a public health program, including:
  A. Appraisal of community needs for nutrition services, such as studies and surveys.
  B. Choice between direct and consultant services of nutritionists.
  C. Teaching nutrition through such methods as:
    1. Interviews and counseling.
    2. Lectures, discussions, panels, and demonstrations.
    3. Institutes and workshops.
    4. Audio-visual aids—publications, radio, and so on.
  D. Preparation, assembling, and critical evaluation of educational material, both technical and popular.
  E. Interpretation of nutrition services to coworkers, allied agencies, educational institutions, and the community.
  F. Keeping and using records and reports.
  G. Evaluation of the nutrition program and the services that contribute to it.
II. To acquire an appreciation of administrative techniques, including budget-making and staff supervision.

FIELD EXPERIENCE—SPECIFIC OBJECTIVES

(Field experience is listed in some detail in order to suggest the variety of experience which may be available in the community.)

I. To observe and participate in the activities of local and state agencies so that theory gradually assumes greater meaning, and the ability to function as a nutritionist is developed.
  A. Preceding graduate study. Students who have not had experience in the public health field may find it desirable to spend two weeks or more in a local health agency, official or voluntary, before beginning graduate study, so that they may have some acquaintance with the activities.
  B. Concurrent with academic study. The equivalent of one day a week throughout the academic year seems desirable in most cases. Observation and participation may be chosen from the following areas:
    1. Health.
      a. Staff conferences.
      b. Prenatal clinics and mothers' classes.
      c. Child health conferences.
      d. School health services.
      e. Child guidance and psychiatric clinics.
      f. Food clinics.
      g. Home visits with public health nurse or nutritionist.
      h. Institutes and workshops for health personnel.
      i. Study of public health records.
      j. Nutrition surveys and studies.
    2. Social welfare.
      a. Staff conferences.
      b. Case conferences; working with individuals, families, or groups; case recording; technique of the interview.
      c. Meeting of council of social agencies.
      d. Preparation of budgets, including food pricing.
    3. Education.
      a. Local institutes, workshops, or teachers' conferences.
      b. School lunch conferences and visits to different types of programs.
      c. Meeting of school-community groups, such as Parent-Teacher Associations.
      d. Experience in teaching nutrition at different levels, for instance, children and adult, lay and professional.
      e. Nutrition services to physical education



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and health services of schools and colleges.

4. Other opportunities for field experience.
   a. Nutrition programs in industry.
   b. Small institutions not employing a dietitian.
   c. Settlement house and housing unit groups.
   d. Agricultural Extension Service and related agencies.
   e. Red Cross nutrition services.

C. Block of field experience. A minimum of two months' full-time experience seems desirable—preferably not during the summer, since programs at this time are likely to be curtailed and staff members are often on vacation. Active participation—direct and consultation—may be chosen from the following:

*1. Become familiar with the activities of the agency, organization, objectives, policies, and plan of operation through individual conferences, study of reports, and so on.

*2. Spend time in the field with the local staff, including the health officer, nutritionists, nurses, sanitarians, and health educators.

*3. Assist in giving consulting service to agency personnel.

*4. Participate in clinics and conferences.

*5. Participate in general staff education activities of the agency, including:
   a. Conferences.
   b. Institutes.
   c. Staff meetings.

*6. Participate in institutes and workshops for other groups, such as teachers, case workers, nurses, lunchroom managers and workers.

*7. Prepare or assist in preparing educational materials, including radio talks and press releases for professional and non-professional groups.

8. Participate in community activities of health educators.

9. Participate in surveys such as those for:
   a. Appraisal of nutritional status.
   b. Food practices of communities or special population groups.
   c. Surveys of food resources.

10. Participate in special studies or projects relating to nutrition, such as:
   a. Study of cases under ante-partum supervision.
   b. Care of children suffering from rheumatic fever.

11. Consult with nursing schools, child-care institutions, small hospitals and sanatoria, and other institutions regarding food service and the nutritional needs of personnel or patients.

12. Serve as nutrition consultant to the staff of outside agencies served by her own agency (local nursing agency, welfare department, family welfare agency).

13. Give consultant service in the field of industrial health.

14. Participate in field training programs of medical students, student nurses, and dietetic interns.

*15. Become acquainted with programs of other agencies concerned with nutrition, such as the Agricultural Extension Service and the American Red Cross.

*16. Prepare reports of services given and read reports of other workers.

If the student is to secure maximum value from field experience, it is important that there be close cooperation between the college and the agencies offering the experience, and that the work be supervised by a qualified nutritionist.

* Core experiences which are usually available in a health agency.

REFERENCE

(1) ADDISS, L. K., AND HESELTINE, M.: Training for social welfare and public health. J. Home Econ. 39: 637, 1947.

Sulphur in Human and Animal Nutrition

Three compounds of sulfphur are classed as essential in human and animal nutrition: the two vitamins, thiamine and biotin, and the amino acid, methionine. In addition, the amino acid, cystine, can substitute for a part of the methionine requirement. The sulphur-containing methionine is more than a building block for proteins, in that it also provides an efficient source of methyl groups, and hence substitutes in part for a third vitamin, choline. Plants normally synthesize the above essential sulphur compounds from inorganic sulphate, and in addition form a number of organic constituents of foods that have nutritive value, such as glutathione. Recent work with radiosulphur has demonstrated also that animals have at least some capacity to utilize sulphide sulphur and sulphates in the synthesis of their body-building materials.—*Abstract of a paper presented by Charles Glen King. The Nutrition Foundation, Inc. New York City, at the meeting of the American Chemical Society in Houstin on March 29, 1950.*

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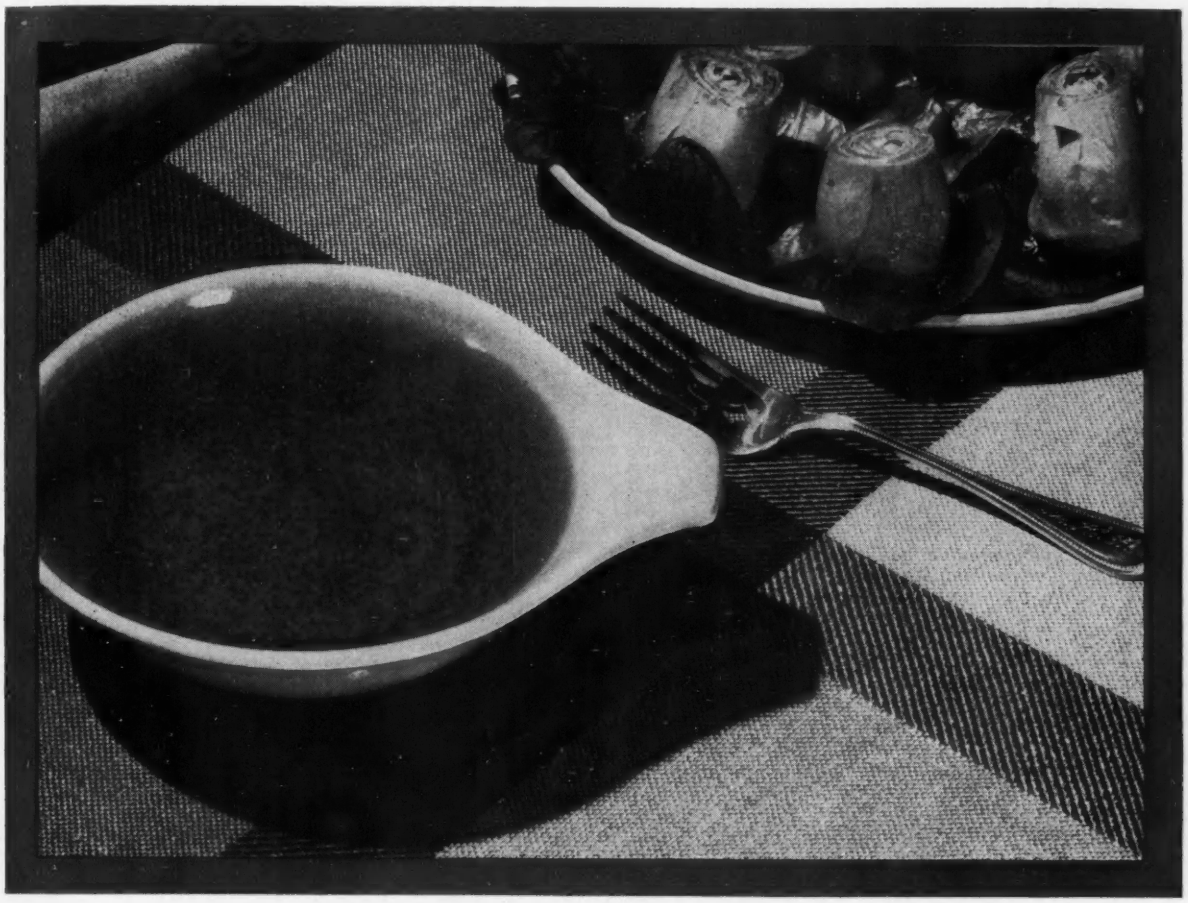

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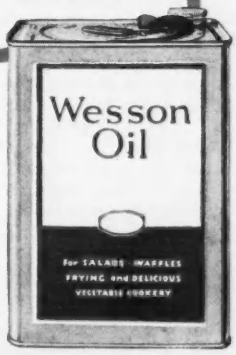

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Book Reviews

The Salt-Free Diet Cook Book. By E. G. Conason, M.D., and Ella Metz. New York: Lear Publishers, Inc., 1949. Cloth. Pp. 137. Price $3.

With the renewed interest in and increased use of the low-sodium diet, this book is timely. It is intended to be a practical and helpful guide to individuals who are confronted with the problem of constructing the low-sodium diet and contains references to the literature on "whys and wherefores" of restricted sodium. Numerous menus and recipes have been included. The recipes have been tested in that they were prepared and served to a patient in need of the low-sodium diet.

The authors have included a table giving sodium content of some six hundred basic foods as reported by the following four authorities: McCance and Widdowson in *Chemical Composition of Foods*; Mead Johnson and Company in "*Sodium and Potassium Analysis of Foods and Waters*"; Peterson, Skinner, and Strong in *The Elements of Food Biochemistry*; and Sherman in *Chemistry of Food and Nutrition*. The authors state that wherever a large discrepancy was found between authorties, the higher value was used, assuming "that it was desirable to err if necessary on the side of a lower rather than a higher content of sodium." The sodium figures are all listed as milligrams per ounce. The "usual portions" of food in the table are not in the same measures as the recipes, hence figuring the sodium values would require considerable mathematical work on the part of the user. This would be confusing and would allow for gross errors in the diet. In a few instances the calculated values in the menus do not agree with the values in the table.

The recipes are interesting, and if used by someone familiar with sodium values in foods, would add interest and relieve monotony of the low-sodium regimen. Some of the recipes, however, are misleading in that they do not designate cooked or raw weights. Also, for most of the vegetables the authors do not indicate whether they are canned, fresh, frozen, or unsalted. Canned vegetables have salt added, and it is not required by law that this appear on the label.

A minimum amount of milk and milk products are used in the menus, and the amount used does not meet the National Research Council Allowances for nutrients. No reference has been made to the use of low-sodium milk products which are now available and could be used to alleviate this problem. Suggestions for increasing caloric value of some of the menus would also be helpful.

Although a special section is devoted to diets for diabetic patients, the menus would be confusing for the average patient. It appears that all the attention was directed to calculating the sodium content and no provision was made for proper distribution of other nutrients to provide an adequate diet in other respects.

There is inconsistency in terminology. The terms "salt-free" and "low-sodium" are used interchangeably, which, to the average reader would be misleading. For those people who have a thorough knowledge of food composition the book has many useful suggestions.—*Ann Reimer, Research Dietitian, University Hospital, Ann Arbor, Michigan.*

Nutrition and the Public Health—A Study Guide. Rev. ed. By A. M. Beeuwkes and J. J. Hanlon. Ann Arbor, Mich.: The Overbeck Co., 1949. Pp. 114. Paper. Price $2.75.

The first printed edition of this study guide was brought out in 1947. For several years previous to that time, the authors, who are on the faculty of the School of Public Health at the University of Michigan, had worked on a set of teaching outlines which would minimize the preoccupation with note-taking in class, leaving the students freer to think along with the instructor and thus to participate in discussions. The authors were persuaded to make their outlines available outside the School of Public Health and a lithoprinted edition was published in 1947. The present revision came out in October, 1949. The *Study Guide* summarizes the subject matter and the point of view of the course in nutrition for public health workers given at the University of Michigan. The exercises and teaching aids for developing the course content are left to the discretion of the instructor.

The authors approach their subject from a global standpoint. The first section covers the history of public health nutrition, the application of the science of nutrition to the feeding of the nations and the work of contemporary international organizations to that end, the trends in food consumption in the U. S., the dietary standards presently in use, and the conditioning factors which contribute to malnutrition. This sketching-in of the present-day background of problems in food and nutrition is indispensable for workers in public health.

The next ten chapters consist of a review of the science of nutrition with one chapter devoted to each of the nutrients. A part of each chapter covers the sequence of observations and discoveries which finally led to the isolation of the nutrient in question and to a realization of its role in human nutrition.

The application of this factual material to public health problems is dealt with in five chapters covering the fortification and enrichment of foods, food fads and fallacies, the nutrition component of programs for maternal and child health, geriatrics, and oral health. Two chapters cover the organization and functions of nutrition services in a public health program, and the last two are devoted to nutrition in the schools, including a discussion of the use of motion pictures as a visual aid. The supplement contains a bibliography and a list of films and filmstrips which includes a summary of the subject matter presented and an evaluation of the film for use with given groups.

The *Study Guide* has an approach which is pertinent and useful, not only for schools of public health, but for any group at the college level where the aim of the course is to survey the science of nutrition and its application to public welfare. The chapters make interesting reading and the presentation of materials is sufficiently provocative to stimulate the student to do further reading on his own account.—*Frances MacKinnon, Associate Professor, School of Public Health, The University of North Carolina, Chapel Hill.*

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Current Literature

Contributed by Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Hermia M. Handt and Marie L. Helldorfer, Veterans Administration Hospital, Hines, Illinois; Berdena Rosenow, University of Kansas Medical Center, Kansas City, Kansas; Mildred Bonnell and administrative interns, University of Washington, Seattle; Quindara Oliver Dodge, Women's Educational and Industrial Union, Boston; and the Journal Staff.

THE AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 16, December, 1949

*Effects of malnutrition upon mothers and infants in Naples—1945. E. D. Kyhos, N. Vaglio, and E. L. Sevringhaus.—p. 436.

Effects of Malnutrition in Naples, 1945. In 1945 under the joint sponsorship of UNRRA and Congregational Christian Churches a survey was made in Naples of 680 women during the third trimester of pregnancy. Evidence of nutritional handicaps in these pregnant women included: (*a*) obvious loss of weight, (*b*) frequent low hemoglobin levels, (*c*) physical signs of chronic avitaminosis, such as those characteristic of vitamin A, thiamine, riboflavin, niacin, and ascorbic acid deficiencies, and (*d*) numerous instances of very low plasma ascorbic acid level.

THE AMERICAN JOURNAL OF NURSING

Vol. 49, November, 1949

*Nutrition in industry. L. H. Woods.—p. 628.

Vol. 49, December, 1949

Cystic fibrosis of the pancreas. G. E. Gibbs and K. Smith.—p. 783.

Vol. 50, January, 1950

*Protein nutrition in health and disease. H. J. Rynbergen.—p. 35.

Nutrition in Industry. The industrial nurse often conducts nutrition education in plants not employing a dietitian. She needs special preparation for this work. The cafeteria can set an example by applying principles of good nutrition. The writer, a dietitian, describes activities of the plant cafeteria she manages. When no nutrition service is planned in industry, the industrial nurse should try to convince plant executives of the need for it, help formulate plans, and put them into action.

Fibrosis. Cystic fibrosis of the pancreas occurs in 1.7 of 1000 live births. Symptoms are cough and diarrhea. Excess fat appears in stools due to lack of pancreatic juice. Diagnostic tests include tests of pancreatic function, testing stool for trypsin, studying blood levels of vitamin A or amino acids following ingestion of fish oil sources or a protein test meal, and duodenal drainage. The digestive defect is treated with pancreatin, sometimes a low-fat diet, and liberal amounts of vitamins A and D. The pulmonary infection is treated with antibiotics, which have changed the hopeless prognosis of the disease.

Protein Nutrition. A brief but complete resumé of facts concerning protein in nutrition is presented. Topics include protein needs in childhood, pregnancy, wound healing, nephritis and nephrosis, and liver disorders. A recipe for a high-protein drink made with dried skim milk powder is given.

AMERICAN JOURNAL OF ORTHOPSYCHIATRY

Vol. 20, January, 1950

* Relation of cup feeding in infancy to thumb-sucking and the oral drive. R. R. Sears and G. W. Wise.—p. 123.

Cup Feeding and Thumb Sucking. That early weaning causes less frustration reaction than late weaning is shown by observation of eighty children two to eleven years of age. The data do not contradict the assumption of a primary sucking drive; they indicate that such a drive is increased by longer practice at breast or bottle feeding. The number of children who sucked their thumbs was not statistically different between those weaned early and those weaned late. The severity of thumb sucking at two and a half years was greater for those who had been weaned late. This disproves the hypothesis that early weaning (cup feeding) is productive of thumb-sucking. Effects of weaning frustrations in infancy are not detectable in eating or sleeping disturbances in later preschool years.

THE AMERICAN JOURNAL OF SURGERY

Vol. 78, December, 1949

*Intramuscular infusions of protein hydrolysate. J. J. Weinstein.—p. 870.

Vol. 79, January, 1950

* Ulcerative colitis—the panic disease. S. B. Kleiner.—p. 209.

Intramuscular Infusions. Five per cent protein hydrolysate solution was administered intramuscularly to ill surgical patients requiring parenteral fluids and protein nutrition, who could not take adequate amounts of protein orally. The average rate of injection was 1000 cc. in 30 min. Blood amino acid levels indicated that maximal levels reached by this route are one-half that seen with intravenous infusion of similar amounts. Likelihood of systemic reaction is therefore reduced.

Ulcerative Colitis. The author believes ulcerative colitis is due to (a) allergy and psychic disturbances causing diarrhea, (b) avitaminosis causing lesions of submucosa, and (c) ulceration and infection of lesions. Treatment consists of castor oil initially, with regular diet, eliminating food to which the patient may be allergic. Adequate B-complex or thiamine chloride is given. Normal activities are maintained when possible, for psychologic reasons.

BRITISH MEDICAL JOURNAL

December 3, 1949

*Hospital outbreak of enteritis due to duck eggs. L. P. Garrod and M. B. McIlroy.—p. 1259.

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December 10, 1949

Vagotomy for peptic ulcer. Indications and results. I. M. Orr and H. D. Johnson.—p. 1316.

Enteritis Due to Duck Eggs. An account is given of an outbreak of *Salmonella typhi-murium enteritis* involving nurses and patients in a general hospital. The carrier of infection was a lightly cooked pudding made of two hundred duck eggs. Duck eggs may actually contain pathogenic organisms of the Salmonella group, owing to the infection of the bird itself. Chickens are susceptible to the organism, too, but contamination of their eggs is confined to the outer surface of the shell. In view of the low thermal death point of Salmonellae, the survival in even lightly cooked dishes is difficult to explain.

GASTROENTEROLOGY

Vol. 13, December, 1949

Studies on adrenal cortical function in cancer. I. Acute effects of adrenocorticotrophic hormone in patients with gastric cancer. E. C. Reifenstein, Jr., B. J. Duffy, Jr., and M. S. Grossman.—p. 493.

*The uptake of radioactive phosphorus by gastric carcinoma in the human. S. J. Gray, J. Schulman, and M. Falkenheim.—p. 501.

Studies in ulcerative colitis. I. A study of the personality in relation to ulcerative colitis. V. P. Mahoney, H. L. Bockus, M. Ingram, J. W. Hundley, and J. C. Yaskin.—p. 547.

Radioactive Phosphorus and Gastric Carcinoma. Patients undergoing subtotal gastric resection for gastric cancer or duodenal or gastric ulcer were studied. Radioactive phosphorus solution was given intravenously 36 hr. prior to operation. Chemical determinations and Geiger counting of tissue sample solutions revealed 48.5 per cent higher turnover of phosphorus in gastric carcinoma than in non-cancerous gastric mucosa, 126 per cent increase in rate of turnover of protein phosphorus, and 44 per cent increase in lipoid phosphorus turnover.

THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION

Vol. 39, December, 1949

*Mastication, the detergent, the adequate and the low-sugar diets: their effect on dental caries. J. Brauer.—p. 682.

Dental Caries. Dental caries is caused by acids resulting from the action of micro-organisms on carbohydrates. It is characterized by a decalcification of the organic portion and is accompanied or followed by a disintegration of the organic substance of the tooth. By the restriction of carbohydrates in the diet, it is believed that the organisms responsible for acid production in the mouth can be reduced in number. It has been stated that a child who receives and utilizes a diet which is fully adequate in all respects for body needs will not develop dental caries. The view has also been presented that many people may eat liberal amounts of starchy food and yet remain relatively free from dental caries provided the intake of refined sugar is low.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 19, October, 1949

* Peptic ulcer in South India. D. K. Sabhesan.—p. 3.

Peptic Ulcer. Increased incidence of peptic ulcer is thought to be due to shortage of protective foods and inadequate diets, as well as to the increased strain of modern life. Malnutrition, marked hypoproteinemia, and ascorbic acid deficiency prevent the healing of the ulcers of most patients in South India.

JOURNAL OF LABORATORY AND CLINICAL MEDICINE

Vol. 34, December, 1949

*Amino acid excretion in degenerative diseases of the nervous system. H. Porter.—p. 1623.

*Parenteral nutrition. S. Gorens, R. Geyer, L. Matthews, and F. Stare.—p. 1627.

Amino Acid Excretion. It has been noticed that there is an increased urinary excretion of amino acids in both early and mild states of hepatolenticular degeneration. The excretion of amino acids was studied in representative cases of Huntington's chorea paralyses agitans, dystonia musculorum deformans, familial spastic paraplegia associated with mental defects, and hepatolenticular degeneration. With the exception of hepatolenticular degeneration, none of the conditions studied showed a significant elevation in urinary excretion of total alpha-amino acid nitrogen per hour as compared with normal excretion.

Parenteral Nutrition. An emulsion of fat called "Emulsion 41," consisting of 15 per cent coconut oil, 4.3 per cent dextrose, and a combination of 0.5 per cent soybean phosphatides and 1 per cent polyglycerol esters, was successfully administered to animal and man. It was found according to clinical observations that fat emulsions in parenteral nutrition are useful in a wide variety of cases. This emulsion furnished 1600 calories per liter. It can be infused at the rates commonly employed for intravenous administration of glucose or saline solutions. One patient having a ruptured appendix, peritonitis, and multiple abscesses, received this emulsion for twenty-seven days. In this case complete parenteral feeding was necessary. During this period of infusion, loss of weight was prevented. In other cases where this emulsion was administered and the patient expired before tests were completed, a post-mortem examination showed no evidence that the extensive fat infusion had in anyway contributed to death.

THE JOURNAL OF NUTRITION

Vol. 39, November, 1949

* Erosion of molar teeth by acid beverages. C. M. McCay and L. Will.—p. 313.

* Effects of dietary depletion of riboflavin. M. K. Horwitt, O. W. Hills, C. C. Harvey, E. Liebert, and D. L. Steinberg.—p. 357.

* The relationship of carbohydrate metabolism to protein metabolism. III. Further observations on time of carbohydrate ingestion as a factor in protein utilization by the adult rat. H. N. Munro.—p. 375.

Vol. 39, December, 1949

* The effect of cocoa upon calcium utilization and requirements, nitrogen retention and fecal composition of women. M. L. Bricker, J. M. Smith, T. S. Hamilton, and H. H. Mitchell.—p. 445.

Nutrient analyses of United States food supplies. L. E. Booher and I. T. Behan.—p. 495.

Erosion of Teeth by Acid Beverages. In the rat, erosion of the molar teeth was detected after the consumption of 10 cc. acid solutions of the same strength used in cola beverages. A comparative test of acid during a six-month period indicated that tomato juice had the least effect and 0.055 per cent phosphoric acid the most. Rat teeth subjected to the phosphoric acid were eroded nearly to the gum line, and erosion was too severe for scoring in the conventional manner. Human teeth suspended in cola beverage or its equivalent in sucrose-phosphoric acid gradually lose calcium in the course of two weeks. The buffer capacity of the human mouth against cola beverages differs widely, but it is fairly consistent for a given individual. Even after a half minute's exposure some mouths cannot buffer the solution to a *pH* higher than 3.5, which is considered marginal for erosion. Rhubarb juice combined with equal parts of lemon juice protected the teeth against erosion.

Riboflavin Deficiency in Man. The effects of diets restricted in riboflavin, but otherwise adequate, were observed in fifteen male subjects. Fourteen other subjects served as controls. Depletion with respect to riboflavin on a diet of 0.55 mg. in 2200 calories was maintained from nine to seventeen months, during which period angular stomatitis, seborrheic dermatitis, scrotal skin lesions, and dimi-

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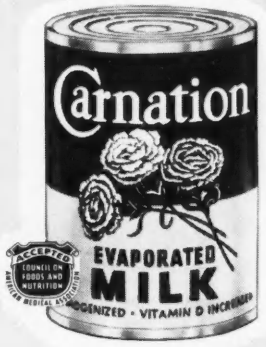

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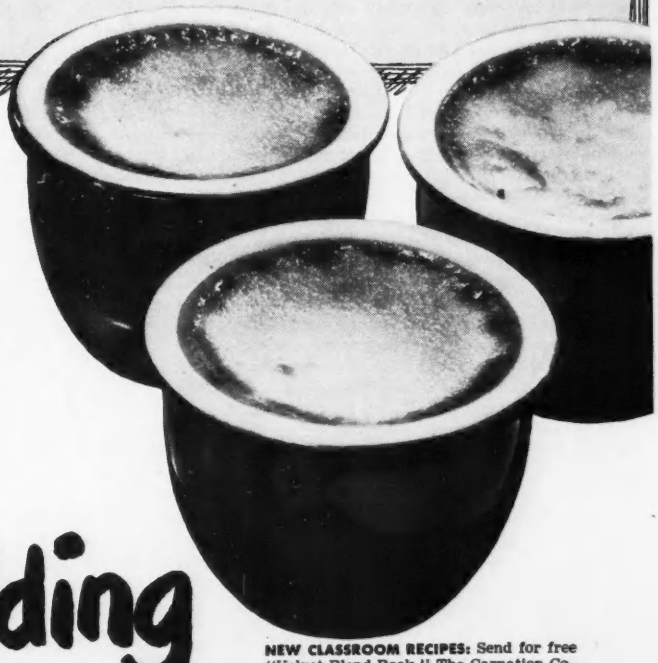

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Combine Carnation Milk, water, sugar and salt. Heat to scalding point. Pour slowly over eggs, stirring thoroughly. Add vanilla. Strain while still hot into custard cups or baking dish; add dash of nutmeg or cinnamon. Set in shallow pan filled with hot water to height of custard. Bake immediately in moderately slow oven (325° F.) for about 30-35 minutes. Serves 4. And this smooth, perfect, custard is extra nourishing, thanks to double-rich Carnation Milk.

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nution of ability to perceive flicker were observed. The inadequacy was confirmed by feeding rats the same diet. Studies of urinary riboflavin excretion suggest that the riboflavin requirement of a resting adult is 1.1 to 1.6 mg. per day. A reserve of riboflavin cannot be maintained on levels of intake below 1.1 mg.

Protein Sparing. Adult male rats were first given a diet with the protein fed apart from the carbohydrate, and then the same diet with most of the carbohydrate fed along with the protein. The immediate effect of this change in the time of feeding carbohydrate was a considerable improvement in nitrogen balance. After a few days, however, nitrogen balance returned to its original level. Subsequent separation of the times of ingestion of carbohydrate and protein caused a transient impairment of nitrogen balance. It has been concluded that protein utilization is affected by the presence of carbohydrate in the same meal. No change in nitrogen balance was observed in experiments involving similar alterations in the time of feeding fat.

Cocoa and Calcium. The effect of ingesting a moderate cost American process cocoa on calcium utilization was studied in eight college women. Calcium balances for 208 consecutive days were estimated. Five levels of cocoa (5.6, 21.0, 28.5, 34.8, and 56.2 gm.) were tested, four in diets containing milk as the major source of calcium and the other (21.0 gm.) in a milk-free diet. Even though significant changes in calcium balance were not demonstrated, there was a significant effect upon the path of calcium excretion. With the inclusion of cocoa, in 25 of 27 comparisons the urinary calcium fell, and in 23 of 27 cases the fecal calcium rose above that of adjacent periods in which cocoa was omitted. Any possible deleterious effect of cocoa on calcium utilization was obscured by variation within the subjects.

THE MEDICAL CLINICS OF NORTH AMERICA

Vol. 34, January, 1950

* Present status of caries control and caries prevention. M. Massler.—p. 13.
* Chronic nephritis and nephrosis in children. H. H. Boyle and H. J. Herbert.—p. 71.
* Acute glomerulonephritis. J. K. Calvin.—p. 95.

Dental Caries. The main cause for dental caries is the bacterial action on the tooth surface. Refined sugars are responsible for many caries. The average individual consumes far too much sugar to satisfy caloric intake. For 1948 the average person in the U. S. consumed 142 lb., whereas the caloric need is about 40 lb. In about 1½ min. after the ingestion of sugar, the tooth surface *p*H drops from 7.0 to 5.0. Saliva helps to neutralize sugars at meal time. Vitamin D and calcium are needed in the formation of strong teeth, but do not help in the prevention of tooth decay.

Nephritis and Nephrosis. There are three steps in treating children with nephritis or nephrosis. (a) Sodium chloride should be reduced to 1 to 2 gm. daily. (b) An acid-ash diet which is high in protein and low in salt should be given. (c) Fluid intake should be from 1500 to 2000 c.c. This liberal fluid intake helps the kidney eliminate the mobilized sodium ion. During the first seven to ten days edema may increase. This treatment should continue for about three weeks. While the above treatment is not a cure for nephrotic edema, patients on this regimen improved clinically.

Acute Glomerulonephritis. A normal diet is prescribed for those patients with glomerulonephritis who have normal blood urea nitrogen and blood pressure and whose urinary output is good. In acute cases the kidneys should be rested. For the first few days a liquid diet of sweetened fruit juices and milk is advised. A low-protein diet with liberal intake of fluids is advised. Protein intake should be about 1 gm. per kilogram body weight. Sodium chloride should be restricted to 2 gm.

THE NEW YORK STATE JOURNAL OF MEDICINE

Vol. 49, December 1, 1949

* The peptic ulcer problem. A. F. R. Andresen.—p. 2811.

Vol. 49, December 15, 1949

* Diabetes control in the public health program. H. L. C. Wilkerson.—p. 2945.

The Peptic Ulcer Problem. The treatment of peptic ulcer resolves itself into three principal indications: the treatment of the simple uncomplicated ulcer, the treatment of complications, and the prevention of future ulcers. In treating uncomplicated ulcer, the diet should be balanced, with possibly a slight excess of protein, and should consist of three meals a day with between-meal nourishment and evening feedings at 2- or 3-hr. intervals while the patient is awake. Minerals and vitamins are usually prescribed in tablet form. Psychotherapy will greatly aid the rapid relief of symptoms. A full diet is usually started in two to three months.

Diabetic Control in Public Health. The general concept of public health today deals with the prevention of disease, the prolongation of life, and the promotion of mental and physical efficiency through organized community effort. With advances in insulin and diet therapy, the diabetic patient has an ever increasing life span, and the proper psychologic presentation stimulates good mental adjustment. Diabetic care thus comes under the field of public health. In the case of diabetes there is sufficient knowledge to launch a program which could aid the prevention and control of the disease. Detection of new cases of diabetes should be made by screening large groups of the population with urine and blood tests for sugar. This could be done ideally each time the individual reports to a clinic or doctor's private office. Adequate education must be given to the diabetic patient. Education of the general public concerning early symptoms of the disease is important. A quick new screening method for blood glucose determinations is described and illustrated.

PSYCHOSOMATIC MEDICINE

Vol. 11, September—October, 1949

* Special features of personality which are common to certain psychosomatic disorders. E. F. Gildea.—p. 273.

Personality in Psychosomatic Disorders. Data on personality malfunction observed by various investigators have been summarized, indicating types of maladjustments common in ulcerative colitis, hypertension, hyperthyroidism, rheumatoid arthritis, coronary disease, peptic ulcer, and bronchial asthma. Differences in response to psychotherapy, including psychoanalysis, are discussed. Patients who can express underlying conflicts and find appropriate energy outlets recover most readily.

PUBLIC HEALTH NURSING

Vol. 41, December, 1949

* Dietary service in a maternity clinic. M. E. Lowenberg, M. Mouw, and L. Weyrick.—p. 638.

Dietary Service in a Maternity Clinic. In the maternity clinic of the Rochester-Olmsted County Health Department in Minnesota all pregnant women receive dietary supervision. Dietary histories of 162 pregnant women were taken as they made their regular visits. It was found that 71 per cent had sufficient protein, 70 per cent sufficient ascorbic acid, 26 per cent had good intake of vitamin D. Seventy-five per cent of the women who had definite food likes and dislikes had fair to poor diets. However, 38.8 per cent of those with no dislikes had fair to poor diets. The survey revealed that more adequate dietary instruction for the pregnant woman was necessary. A plan for using the public health nurses and the dietetic interns in teams was worked out.

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They save precious time in the morning. Each box a one-person serving. Cuts down waste, too, for an unused package is unopened!

The public health nurse was assigned to the diet service for two months and became the leader of the diet team because of her knowledge of family problems.

PUBLIC HEALTH REPORTS

Vol. 64, December 16, 1949

* Report of nutrition demonstration program in Ottawa County, Michigan. E. S. Osborne, Jr., E. C. Tabor, M. M. Bouser, B. L. Anderson, and K. H. Frankhauser.—p. 1603.
Oral administration of killed *Brucella* to man. N. B. McCullough, C. W. Eisele, and G. A. Beal.—p. 1613.

Nutrition Program Demonstrated. A nutrition survey was conducted by the Ottawa County, Michigan, Health Department in cooperation with the Nutrition Branch, U. S. Public Health Service. It demonstrated that an epidemiological team in nutrition can obtain valuable information about the nutritional status of various groups. Participation by local public health nurses did not unduly disrupt their generalized nursing program. The in-service training in nutrition provided for the staff of the Ottawa County Health Department created an active interest in nutrition. Findings revealed that significant nutritional problems existed in a fairly prosperous area served by a well-organized health department. The need for a continuing nutrition program with preventive and corrective measures was clearly shown.

SCIENCE

Vol. 110, December 2, 1949

* A preliminary report on the study of the relationship of psychosomatics to oral conditions—relationship of personality to dental caries. J. H. Manhold and V. W. Manhold.—p. 585.

Relationships of Personality to Dental Caries. At the Tufts College Dental School, Boston, a Bernreuter Personality Inventory was the test applied to fifty subjects to determine three categories of personality—introversion, extroversion, and neurotic tendencies. Teeth were inspected and the number of caries, fillings, and missing teeth recorded. A surprisingly high correlation was found between condition of the teeth and psychic factors.

SOUTHERN MEDICAL JOURNAL

Vol. 43, January, 1950

* The hemopoietic response of patients with pernicious anemia to crystalline vitamin B_{12}b. T. Spies, R. E. Stone, M. B. Koch, H. M. Grant, and M. M. Moore.—p. 50.
* Gout, diabetes mellitus and obesity, a poorly appreciated syndrome. H. T. Englehardt and E. L. Wagner.—p. 51.
* Diabetes and pregnancy. W. M. Woodall.—p. 73.

Pernicious Anemia and Crystalline Vitamin B_{12}b. Two crystalline vitamin B_{12} products have been produced, each showing a different spectrum absorption. Therefore, they have been designated as vitamin B_{12}a and vitamin B_{12}b. The hemopoietic activity of B_{12}b has been tested. Four patients with acute pernicious anemia had a satisfactory hemopoietic and clinical response to vitamin B_{12}b. Further study is necessary to determine whether this material is as active per unit of weight as vitamin B_{12} *per se*. Preliminary studies suggest vitamin B_{12}b is effective in nutritional macrocytic anemia and tropical sprue, but more conclusive studies must be made.

Gout, Diabetes Mellitus, and Obesity. Early European writers stressed the triad of diabetes, obesity, and gout and thought there was an important relationship among the three. Basically gout and diabetes are two metabolic disturbances of a hereditary nature. Individuals suffering from gout or diabetes tend to be obese. The role obesity plays in the deranged purine and carbohydrate metabolism is still unknown. This triad probably occurs more frequently than indicated by literature, and any individual with one disease should be investigated for the other.

Diabetes and Pregnancy. Management of diet in the pregnant diabetic woman is essential. Diet should be liberal in calories with careful attention to weight to assure a gain of not more than 16 lb. during the pregnancy. As a general rule, 30 calories per kilogram is recommended with a high-protein intake—1.5 to 2 gm. per kilogram. Carbohydrate intake should be liberal, 180 to 225 gm. per day, and the fat intake should be low, only sufficient to meet caloric requirements. Multiple doses of regular insulin with protamine zinc are better than large doses of protamine alone, especially in the last trimester where day to day requirements are most erratic.

AMERICAN RESTAURANT MAGAZINE

Vol. 34, January, 1950

* Consider casseroles—those one dish meals.—p. 33.

One-Dish Meals. Many ideas are presented for meals using less expensive foods and extenders. Varieties of standard recipes give added interest to often used dishes by offering new and unusual ways of preparing and serving them. Attractive combinations and main dish accompaniments lend new ideas to brighten up a day's menu by using food of a contrasting color, texture, and flavor; for example, adding slivered almonds to a cream sauce before serving with fowl. Methods of cooking, seasoning, and baking are included in this article. Recipes are given for poultry, fish, meat, cheese, eggs, cereals, and lentils.

BUILDINGS

Vol. 49, December, 1949

*16 aids to conference room efficiency. R. L. Oetting.—p. 32.
Keeping your hot water hot. H. L. Shuldener.—p. 36.

Conference Room Efficiency. Sixteen constructive suggestions for modern, efficient, and comfortable conference rooms are listed and discussed in this article. Smoother, more effective conferences are facilitated by attention to factors in the preliminary planning and organizing of the conference room.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 8, January, 1950

* Fresh facts about frozen foods.—p. 34.

Progress in Frozen Foods. Experiments have proved that foods frozen in large metal containers will retain an internal temperature below −50° for ninety days in a normally insulated refrigerated car standing in a 100° temperature. This demonstrates the possibility of around-the-world shipping without added refrigeration.

It is believed that the amazing growth of the frozen food industry during the last year will continue in ratio with availability of zero storage facilities. Government standards for quality of frozen foods have been established for eight important vegetables, six of the more important fruits, fish, poultry, and meat. Some of the problems yet to be considered are standardization of package sizes, uniform improved standards for frozen fish, and development of techniques for pre-cooked foods and bakery products.

FOOD INDUSTRIES

Vol. 22, January, 1950

* Plug those cost leaks. A. Uris and J. H. Kostmayer.—p. 44.
Quick-way sanitation. J. V. Ziemba.—p. 46.
* World food outlook—four points of view.—p. 54.
* Meat-color problem is closer to solution. A. A. Kraft and J. J. Wanderstock.—p. 67.

This is number one of a series of three announcements of nutrition research.

Keeping up with Nutrition Research

New study published on human protein metabolism

TODAY, the problem of protein utilization in humans is a vital issue with food scientists. Research with animals has made it clear that in order for the body to utilize protein fully for tissue synthesis, all of the essential amino acids must be present simultaneously and in adequate amounts.

Now, we have the results of a study using a group of young college women as subjects. This study set out to determine what effect the *distribution* of the daily intake of complete protein had on its efficient use by the body.* Milk was selected as the complete protein food for the experiment.

Other studies are being planned to explore the subject further. Meanwhile, these results present some interesting and challenging ideas on protein metabolism in human subjects.

*Leverton, R. M. and Gram, M. R. *Nitrogen excretion of women related to the distribution of animal protein in the daily meals.* J. Nutrition 39:57 (Sept.) 1949.

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Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and education to extend the use of dairy products.

Cost Leaks. This article provides a working formula for finding and correcting faulty operations, starting at top management and sweeping right down the line. Your saving plan should aim at conserving these five basic resources: effort—often exerted to no advantage; material—often spoiled, misused, or dumped as waste; talent—often left untapped; time—often lost in idleness of men and machine, cutting down output; and money—often misspent, saved unwisely, or lost through errors.

Food in Relation to World Outlook. World production and distribution of food as a weapon for peace was discussed at a symposium arranged by the Chemical Engineers Club of Washington, D. C. The panel of four discussed world food outlook, what agronomy can contribute, and the food technologist's place in world feeding. Examples, such as Mexico's six-year plan aiming at reduction of cereal imports by extensive irrigation of new land and wider use of fertilizers, were cited. Possible methods of increasing production of food in America, for example the use of modern tools and methods, were advanced.

Meat-Color Problem. Results are presented here of an anti-discoloration investigation at Cornell University. It was found that the best wrappers were a rubber-base film for fresh meat and cellophane for cured meat. Of the antioxidants considered, 0.01 per cent nordihydroguaiaratic acid was found most effective for fresh meat. These chemical agents were not effective in cured meats. For fresh meats it was found that the temperature should be slightly above freezing, while smoked meats kept best at 38 to 40°F. It was also found that meat color was best preserved when ordinary incandescent bulbs were used in displaying meats.

FOOD PROCESSING

Vol. 11, January, 1950

* Peeled potatoes for marketing can stay fresh.—p. 8.
* Frozen fruit pies.—p. 16.
Changes in eating habits.—p. 32.

Peeled Potatoes for Marketing. Pictured and described are the production-line methods that could be set up for preparing potatoes for the consumer and institutional fields. Peeled potatoes, either whole or cut for French fries, are dipped in a solution which prevents them from darkening and inhibits mold growth. To keep the treated potatoes moist, they are packed in special bags. The potatoes keep for a minimum of one week at normal refrigeration (40° F.).

Fruit Pies Frozen in Aluminum-Foil Packs. A New York restaurant packages frozen fruit pies in foil containers that permits baking by consumer in the container and storage in the minimum of space. The rectangular aluminum-foil package holds four average servings. Its sides slope so that the empty packages can be nested for storage. The package acts as the baking pan and occupies about one-half the space needed for storing conventional round 8-in. pies. Aluminum being an excellent conductor, the package also speeds initial freezing and eventual baking.

INSTITUTIONS MAGAZINE

Vol. 26, January, 1950

* Institutions point to volume appeal in orange concentrate.—p. 1.
*Freezing ways that work best on sandwiches.—p. 48.

Volume Appeal in Orange Concentrate. A vacuum process recently has been perfected that permits the preservation of the vitamins and flavor in a frozen orange juice concentrate. Patron enthusiasm for the concentrate suggests an increasing demand for orange juice dispensers. This frozen concentrate is packed for institutions in 32-oz. cans. When properly diluted with water, the concentrate makes 1 gal. of juice. Use of the concentrate saves man hours and eliminates handling and storage of whole oranges.

Freezing Sandwiches. Reported here is the result of research on the refrigeration and freezing of sandwiches by the American Institute of Baking. In ordinary refrigerators sandwiches can be held not more than 24 hr., but in a frozen food locker they can be kept for months. All varieties of bread will freeze satisfactorily. Sandwiches thaw in 1 hr., and if they are packed to carry out, they will keep other foods fresh and crisp for hours. Egg fillings toughen and should not be frozen nor should tomatoes or lettuce sandwiches. Sandwiches should not be sealed in cellophane as they become soggy. Avoid holding sandwiches at temperatures which will permit the growth of harmful bacteria. An acid ingredient in the filling will retard bacterial growth during storage.

PERSONNEL JOURNAL

Vol. 28, January, 1950

* Is personnel a professional occupation? J. O. Rice.—p. 285.
* Installing an incentive plan. E. A. Delson and W. J. Burns.—p. 296.
* The art of plain talk.—p. 300.

Personnel. An address at the Sixth Annual Industrial Relations Conference, University of Minnesota, Minneapolis, considered the desirability of the personnel group qualifying for professional status. Since there is at present no special course of study required for personnel work and the requirements of the position are not standardized, much narrowing and exclusion would result if professionalism and its accompanying rigidity of standards were to be achieved. Because the aim of the personnel man should be to help business make more money, his function is purely commercial and violates the dictionary definition of "profession."

Incentive Plan Installation. There are often incentive plans in industry but all too often little incentive is created in the man on the job to understand and trust the use of these plans. The plan's introduction to the workers and the resulting understanding by employees as well as follow-up by management does much to insure its success. A successful incentive plan requires the following phases: (a) choice between a group or individual plan as determined by the working personnel, the product, and previous experience; (b) a sound engineering of the plan when first initiated followed by careful introduction to the workers; and (c) the servicing of the plan to provide a periodic checking of the production and bonus computation to insure accuracy.

Plain Talk. Personnel and industrial relations men know that the impression on the worker made by clear, expressive language is far greater than when verbose and difficult reading matter is handed to him. Illustrating this fact are two advertisements, one an easily read message by the union, the other a wordy, difficult message published by the corporation.

RESTAURANT MANAGEMENT

Vol. 66, January, 1950

* A new approach to the problem of restaurant education. R. C. Kirkpatrick.—p. 95.

The Food Service Clinic. A short course held in various cities of Florida conducted by the Department of Restaurant and Hotel Management of Florida State University with the assistance of local health departments, has been inaugurated by the Florida Restaurant Association for the benefit of restaurant operators. It is a mobile unit that travels throughout the state giving a four-day course. It covers 10 hr. classroom work. The discussions include the factors influencing successful operation, such as operating expenses, labor costs, human relations, and sanitation. To encourage attendance efforts are made to obtain qualified speakers.

The Libbey Heat-Treated Tumbler, shown above, lasts 3 to 5 times longer than ordinary tumblers

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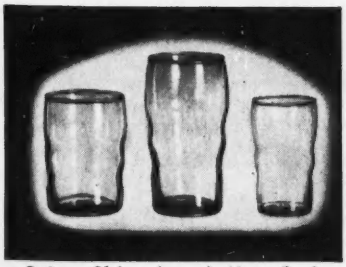

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News Notes

Memorial Library to Honor Dietitian. Plans are under way for a nutrition library at St. Joseph Hospital, Lorain, Ohio, in memory of a twenty-eight-year-old dietitian who died recently. St. Joseph Hospital is a 225-bed hospital for which a new wing is now being completed. In an older wing, a new Dietary Department is being finished, and it is planned to have the library under its jurisdiction, although it will be open to all of the hospital staff and to the public on request. This is believed to be the first such memorial library to honor a dietitian, and the A.D.A. has made a gift to it of a subscription to this JOURNAL.

Borden Award in Chemistry of Milk. George A. Richardson, Professor of Dairy Husbandry and Dairy Chemistry, Oregon State College, Corvallis, will receive the $1000 Borden Award on the Chemistry of Milk for 1950 on April 10 during the Philadelphia Session of the American Chemical Society's 117th meeting.

Dr. Richardson was cited for his outstanding contributions to the knowledge of the physico-chemical properties of milk. His award address will be "Some Dynamic Properties of Milk."

The 1950 Borden medalist is credited with the first scientific explanation of the rennin coagulation of milk. His work on the stability of carotene in milk and milk products showed carotene to be suitable coloring for butter. A simple, practical method was evolved for measuring the carotene content of churning cream, and for calculating the proper amount of carotene color to use to produce a given shade in butter. In a search for agents to keep milk from turning sour, Dr. Richardson showed that certain flavoring materials derived from fruits were of value for this purpose.

Christie Award. This year's Andrew Christie award, a $500 honorarium and a scroll, has been presented to Dr. Gladys E. Vail, Head, Foods and Nutrition Department, Kansas State College, Manhattan, for outstanding contributions in poultry and egg research of most benefit to consumers. The Poultry and Egg National Board, sponsor of the award, met in Chicago at the Institute of American Poultry Industries' Mid-Century Fact-Finding Conference in February.

Dietetic Interns Graduate. At the *University of Oregon Medical School Hospitals*, Portland, Peggy Hantz completed her dietetic internship on January 9.

Two dietetic interns at the *Indiana University Medical Center*, Indianapolis, finished their training on January 31. They are Florence Kennison and Ruth Benzinger Williams.

Public Health Nutrition Training Program. An in-service program in public health nutrition, sponsored jointly by Syracuse University and the New York State Department of Health, will be held at the University, June 19 to July 1.

The first week will be spent in studying interrelationships of nutrients and the latest findings in anemia, heart diseases, pregnancy, and adolescence. A laboratory workshop in techniques of changing human behavior is scheduled for the second week.

May Convention. The National Restaurant Association convention will be held at Navy Pier in Chicago, May 23 to 26.

American Chemical Society 1951 Meeting. Chemists and chemical engineers from more than thirty countries will meet in New York in September, 1951, for the largest international chemical meeting in history. The sixteenth conference of the International Union of Pure and Applied Chemistry and the twelfth International Congress of Pure and Applied Chemistry will meet following the seventy-fifth anniversary meeting of the American Chemical Society. The three meetings will be the first such international combination in the U.S. since 1912.

Poultry Grading and Inspection. The voluntary grading and inspection program for poultry and domestic rabbits has three major changes as of January 1:

(a) Grading and grade labeling of ready-to-cook poultry is permitted without inspection for wholesomeness by a federal veterinarian. However, carcasses which appear diseased are excluded from grade designations.

(b) Grading and inspection of poultry in approved plants must be carried on under prescribed standards of sanitation.

(c) The specifications for the various standards have been broadened to give a complete description in one paragraph without the use of supplemental definitions.

The official *grade* label is shaped like a shield, giving the U.S. grade, the class of poultry—stewing chicken or fryer—and the method of processing, namely, dressed or ready-to-cook. The official *inspection* mark will be a circle with the following words: "Inspected for wholesomeness by the U.S. Department of Agriculture." The combination label which indicates that the product has been both graded for quality and inspected for wholesomeness is a circle surrounding a shield and giving all the necessary information.

The changes were presented by William Dewey Termohlen, Poultry Branch, U.S.D.A., in Kansas City on February 11.

Film Strip on Nonfat Dry Milk. A film strip in color and a set of 2 by 2 in. glass-bound color slides titled "Mrs. Jones Learns about Nonfat Dry Milk" have been developed as teaching aids by the Nutrition Branch, Bureau of State Services, U.S. Public Health Service. The new media have been developed for use with lay groups to show what nonfat dry milk is, how to prepare it, and the advantages of using it. The film strip sells for $10; the set of slides for $50. They are available from the distributor, Creative Arts Studio, Inc., 1223 Connecticut Avenue, N.W., Washington 6, D. C.

Government Cook Book. *Family Fare—Food Management and Recipes*, a ninety-six-page cook book prepared by the Bureau of Human Nutrition and Home Economics, is now being distributed.

The 200 recipes include familiar standbys as well as special dishes, sections on food planning for the home, buying, storing, using left-overs, and substitute ingredients. Considerable material not previously published by the Bureau and some information not always at hand in the home kitchen are included, for example, ways to substitute one ingredient for another and servings per pound of different foods.

The new booklet replaces *Aunt Sammy's Radio Recipes*, issued almost twenty years ago. It is available from the Government Printing Office, at a price of 25 cents a copy.

Plentiful Foods. The following foods are expected to be plentiful during April, according to the U.S.D.A.

Vegetables

Beans, canned	Carrots
Lima	Corn, canned
Beets	Onions
Cabbage	Potatoes, Irish

Fruits

Apples	Prunes, dried
Peaches, canned	Raisins, dried

Protein foods

Beans, dried	Eggs
Chickens—broilers, fryers, and hens	Fish—fresh and frozen
Dairy products, manufactured	Pork and pork products

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WALLACE breakfast, luncheon and dinner silverware sets *fit the tray*—an item of importance to the dietician.

Wallace silverware was *designed* for the hospital, after an exhaustive study of the special requirements of well-run hospitals for patient food service. It "fits" in other ways, with emphasis on economy, cleanliness, durability. Remember, too, the value and beauty associated with silver have a definite *prestige* advantage that is considered by progressive hospital management in making buying decisions. Also, silverware largely eliminates breakage expense.

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New Booklet. A new report titled *Methods for Microbiological and Chemical Determinations of Essential Amino Acids in Protein and Foods* has been issued by the U.S.D.A. as Miscellaneous Publication No. 696. In it is reported research done by the Bureau of Human Nutrition and Home Economics.

New School Lunch Recipes. "Yeast and Quick Bread Recipes for the School Lunch" is the latest in the series of publications prepared for school lunch personnel by the Bureau of Human Nutrition and Home Economics and distributed by the Production and Marketing Administration, U.S.D.A. The new yeast bread recipes—on the 100-portion scale—contain more milk solids, more fat, and more sugar than ordinary bread recipes. Up to 10 per cent nonfat dry milk is used in these recipes, more than three times as much as in some bakery formulas. The different breads also feature whole wheat flour, dried brewers' yeast, soy flour, or wheat germ flour for higher nutritional values. In developing the new breads, one goal was to include more thiamine in the children's diets since chemical analyses of school lunches have shown this vitamin to be the nutrient most often low. In addition to yeast breads and rolls, the new recipe collection includes biscuits, muffins, brown bread, spoon bread, oatmeal bread, and corn bread.

Sources of Teaching Material. A bulletin titled "Sources of Materials for Health Education Compiled for Elementary and Secondary School Teachers" is being prepared by the Teaching Aids Laboratory, Ohio State University. It will be similar to a bulletin on audiovisual aids titled "Sources of Teaching Material" which was issued last year. The listings in the latter publication were divided into the following categories: references on utilization; sources of films, film-strips, and slides; radio program listings; educational recordings; free and inexpensive teaching aids; and helpful associations and periodicals.

New Leaflet on Infant Feeding. A small, 4¼ by 5½ in., four-page leaflet titled "I Can Feed Myself" is now available to agencies for distribution to mothers of young children. It was written by participants in the First Annual Workshop sponsored jointly by the Illinois State Nutrition Committee and the University of Illinois. Variety and color in foods, introduction of new foods, and table manners for the child approaching two years are emphasized. The leaflets can be purchased as a cost of $3 a thousand plus postage from the Illinois State Nutrition Committee, Department of Home Economics, University of Illinois.

Taste-Test Methods. In Washington recently home economists, food technologists, chemists, and statisticians met at a three-day conference, called by the Bureau of Human Nutrition and Home Economics, to work for uniform methods of selecting food judges, preparing food samples, setting up rating scales, and analyzing results.

It was agreed that methods of comparing subjective opinions with objective measurements based on instrument and chemical tests are necessary and that directions for objective methods should be gathered as a reference tool in all laboratory tests.

After preliminary work, it was decided that the factors to be tested should be reduced to as few as possible—two or three characteristics.

A small, well-selected, well-trained panel was considered more accurate than a large untrained one. It was decided that checking the performance of individual judges should be done as often as possible to correct environmental differences.

News of State Associations

California Dietetic Association. In January the *Los Angeles Section* met at the Southern California Gas Company and enjoyed a demonstration on "Quick, Easy Meals for Busy Dietitians" by Maxine Howe of the company's Home Service Department. The February program concerned diet therapy. Four doctors served as speakers: Dr. Jerome Treusch talked on "Protein as a Dietary Factor"; Dr. Marvin Levy, on "Salt in the Diet"; Dr. Carl Strouse, on "Diet in Diabetes"; and Dr. Sam Goodman acted as discussant.

The *San Diego Section* in October met at the San Diego County Hospital. The group was shown two films by a Public Health Department representative: "Why Tommy Won't Eat" and "The School That Learned to Eat." In November a business meeting was held at which committee chairmen were chosen. It was voted to omit the Placement Bureau from the revised state constitution, and the group also decided against endorsing any products. Helen E. Walsh, guest speaker, gave a report of the A.D.A. convention in Denver.

Florida Dietetic Association. The officers of the *Jacksonville Dietetic Association* for this year are: President, Carol Wheeler; President-Elect, Marjorie Morrison; and Secretary-Treasurer, Vera Walker.

At the December meeting of the *Miami Dietetic Association* the following officers were elected: President, Barbara Wheelock and Secretary-Treasurer, Eunice Grady. At the January meeting, held at Pratt VA Hospital, F. J. Mullen, Assistant Director, Florida Department of Agriculture, spoke on "How the State Department of Agriculture Can Help the Dietitian."

Hawaii Dietetic Association. At the January meeting of the Hawaii Dietetic Association, held at Leahi Hospital, two films were shown: "Planning for Good Eating" and "Found in Hawaii." The latter was prepared by the Territorial Nutrition Committee.

Tasty, refreshing fruit juices from sun-ripened fruits.

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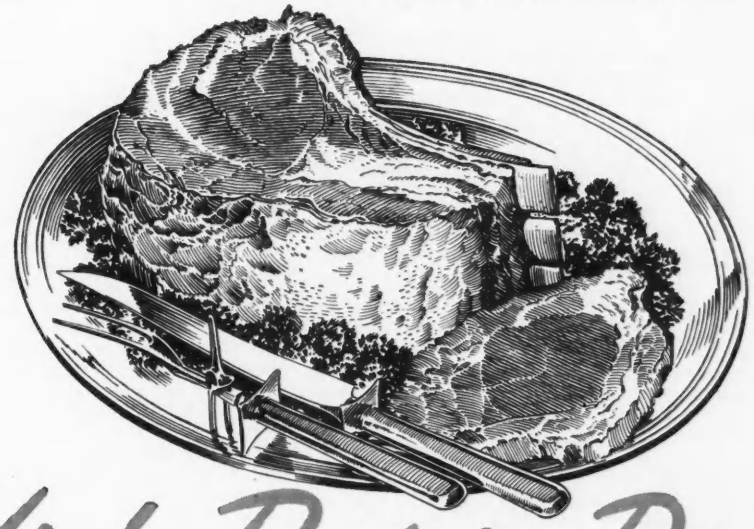


High Protein Diet

GAINS NEW RECOGNITION

High-quality, complete protein—the kind so abundantly provided by meat—is now widely recognized as being essential for vigor and well-being for everybody, from childhood through old age.

High-quality protein is also important for protection against many infections, before and after surgery, during pregnancy and for growth in children. It is valuable, too, in the treatment of diseases of the liver, in peptic ulcer, in functional disorders of the nervous system and in many states of vague ill health.

These are the conclusions of some of America's most distinguished physicians whose findings were recently reported by the dean of American medical nutritionists, James S. McLester, M. D.* This article reviews many new practices, now generally accepted in the field of nutrition, which are almost a complete reversal of ideas held before the war. As McLester notes, "Protein has come into its own."

IN OBSTETRICS

In one of the most far-reaching statements of recent years, it is pointed out that the generous use of high quality protein by the pregnant woman favorably influences her condition and also that of her child at birth. (Such babies, according to studies made at Harvard, have a better chance of starting life in superior condition.)

IN HEALING OF WOUNDS

Referring to the new widespread practice of feeding generous amounts of protein to surgical patients, McLester cites studies indicating that "proteins are essential to wound healing . . . maintenance of tissue . . . and expeditious convalescence."

Reference is made to the radical change that has come in the treatment of most forms of Bright's disease. These patients, formerly restricted to low protein diets, now when given a greatly increased quantity of protein show "significant improvement." More rapid healing of peptic ulcer has been reported with increased protein intake. "Improvement follows in many other forms of illness when the physician induces his patient to eat more meat."

"MOST DRAMATIC ABOUT-FACE"

Declared "the most dramatic about-face . . . in the recent history of nutrition" is the feeding of patients with diseases of the liver. Modern day diets which include a large amount of protein are "accomplishing unexpectedly happy results . . . and give testimony to the high value placed on protein today."

THE PROTEIN OF MEAT

Meat is recognized as America's favorite protein food. It is one of our primary sources of protein —is often called "the yardstick of protein foods" because of its abundance of complete, high-quality protein. In addition, meat contributes significant amounts of B complex vitamins and important minerals.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

*McLester, J. S.: Protein Comes Into Its Own, J.A.M.A. *139*:897 (April 2) 1949.

American Meat Institute
Main Office, Chicago . . . Members Throughout the United States

Indiana Dietetic Association. More than eighty members attended the November meeting of the Indiana Dietetic Association in Indianapolis. Jessie Van Camp, stylist of the H. P. Wasson department store, discussed the season's fashions.

In December, the Indiana dietitians met at the James Whitcomb Riley Hospital for Children in Indianapolis. Following a dinner, Dr. Cecelia Schuck of Purdue University gave a travel talk about Europe.

The spring convention of the Indiana Dietetic Association, to be held in Indianapolis, will take place April 28 and 29. Dr. Russell M. Wilder, Mayo Foundation, Rochester, Minnesota, will be the guest speaker at the banquet.

Clara Zempel, Public Relations Chairman for Indiana and Dietitian, Riley Hospital, Indianapolis, in January spoke before 150 women of the Indianapolis Council of Women on "Feeding Young Children." She was also the guest speaker on a January broadcast of the radio program "At Home with Kathryn Daniels," during which the problems of feeding young children were discussed. Betty Greer, Dietitian, Indiana University Medical Center, spoke recently before a group of Girl Scout leaders from all over the state. She discussed the work and educational requirements of dietitians, and the leaders will in turn relay the information to the girls in their troops.

Kansas Dietetic Association. At Kansas State College, dietitians are receiving cooperation from the radio department in preparing a disc for use in vocational guidance work in high schools throughout the state. The script calls for an interview between a counsellor and a girl and a boy and is based largely on material sent out by the Vocational Guidance Committee of A.D.A. It is being prepared in time for distribution this spring at career conferences.

Mississippi Dietetic Association. On March 10 and 11, the Mississippi Dietetic Association met in Columbus at the Mississippi State College for Women. On Friday a welcoming dinner was held, followed by a showing of the film, "The School That Learned to Eat." The Saturday morning session included a talk by Marie Gifford, Director of Consumer Service, Armour and Company, Chicago, on "Nutritional Research on Meat and Its By-Products," and a report on "Progress of New Hospitals in the State" by J. O. Slaughter, Chairman, Mississippi Commission on Hospital Care. In the afternoon the group heard Vonda A. Webb, District Nutrition Consultant of the Mississippi State Board of Health, describe "The District Nutrition Program in Mississippi."

One of the public relations steps taken by the Mississippi dietitians has been to join the Women's Cabinet of Mississippi. This cabinet is composed of women from all organizations in the state, with memberships primarily of women. It is felt that this is another means of letting the people of the state know about dietetics.

Missouri Dietetic Association. With the cooperation of the St. Louis dietitians, the Missouri Dietetic Association on February 24 held a seminar on food administration at the Scruggs-Vandervoort & Barney Department Store in St. Louis. The following addresses by authorities in the food field were heard:

"How Food Costs Can Be Controlled" by W. J. Hermann, Horwath and Horwath, Chicago

"Plugging Your Food Leaks" by Marguerite Ross, Texas State College for Women, Denton

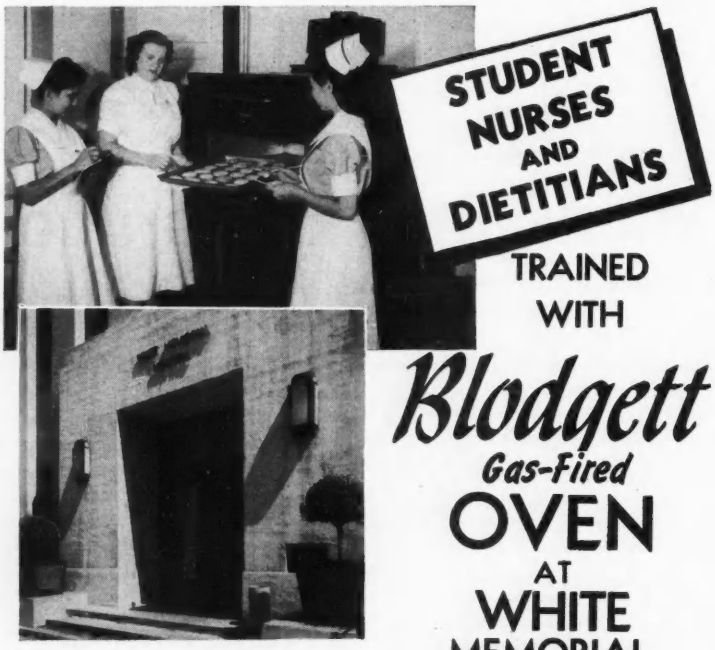
"Buying Hints and Trends of the Food Buyers Market" by Bert Newburger, Vice-President, General Grocer Company, St. Louis

"Considering Labor Costs" by Bessie Brooks West, Head, Department of Institutional Management, Kansas State College, Manhattan

"Labor Saving Devices" by Frank T. Hilliker, Food Service Consultants, St. Louis

"Labor Cost Control from the Restaurant Manager's Point of View" by Harry A. Pope, Jr., Manager, Pope's Cafeteria, St. Louis

Prior to the meeting those who were planning to attend were asked to send ideas they use to save money, time, or motion as well as one question or problem to which they would like an answer. Following the speeches time was allowed for discussion of these problems and techniques.



Ease of operation, versatility and accuracy of control are features of this Blodgett No. 931 Gas-Fired Bake Oven.

Baked foods are of many types. Each must be tasty, healthful and easily digested, while retaining full food value and eye-appeal, according to Miss Eileen Pangburn, student teacher at this noted Los Angeles hospital.

Adds Miss Pangburn: "The versatility, ease and speed of changing from one desired temperature to another, and the accuracy and dependability of control are characteristics required in our operation—and obtainable in our Blodgett Oven."

Write today for literature.

ONE HUNDRED YEARS OF

THE G. S. BLODGETT CO., INC.

OVENS

50 LAKESIDE AVE., BURLINGTON, VERMONT

1 Sure, you know that lipstick traps germs. But even without a tell-tale smear dishes still may be coated with germs. Washing film—*invisible* washing film—traps bits of food, stale tastes, bad odors . . . even germs.

2 Strong alkalies cut lipstick but can't cut washing film. If you remove washing film . . . lipstick goes too. So when you see lipstick, the glass is dirty. But even with lipstick gone washing film filth may remain.

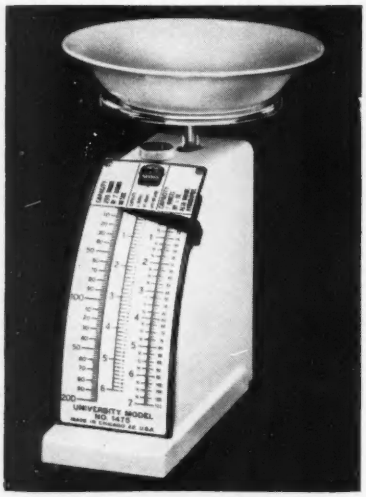
3 Calgonite* when used as directed cleans off both lipstick and washing film. The Calgon in Calgonite *eliminates* washing film . . . *softens* water . . . stimulates alkaline cleansing . . . *prevents* scum and scale in the machine as well as on the dishes!

4 Test Calgonite in your dishwasher. See how it reduces the cost of *clean* dishes. Compare Calgonite not on cost-per-pound but on cost-per-clean dish. Write for free dishwashing instructions. Calgon, Inc., Hagan Building, Pittsburgh 30, Pa.

wash more dishes-cleaner
use
CALGONITE
it contains Calgon*

CALGONITE for mechanical dishwashing. CALADE* for hand dishwashing. CALGOLAC* the sudsless cleanser for bar glassware. NOCA* all-purpose kitchen cleanser for hand use.

**T.M. Reg. U. S. Pat. Off. Calgon is the registered trademark of Calgon, Inc., for its vitreous phosphate products.*



HANSON

Travelers Model

DIET SCALE No. 1475

A plastic body scale with aluminum parts to save all possible weight. Capacity: 200 grams by 2 grams. Additional dial calibration: 7 ounces by ¼ ounce, Apothecary system—6 ounces by drams.

This diet scale has unusual accuracy that is not thrown out of adjustment when packed in luggage for traveling.

Attractive heavy cardboard case covered with black imitation leather is furnished with each scale.

$7.50

Available from your supply house, or ask for Bulletin No. 601

HANSON SCALE CO.

Est. 1888

525 North Ada Street, Chicago 22, Illinois

New York State Dietetic Association. In December, members of the *Buffalo Dietetic Association* were guests of the Home Economists in Business at a dinner. Frances Urban, Field Secretary of the American Home Economics Association, was speaker. For its February meeting, the Buffalo group participated in a workshop in nutrition conducted by Helen Hamilton, President-Elect of the New York State Dietetic Association.

The *Mid-Hudson Dietetic Association* reports that its first project of the year was participation in the National Diabetes Detection Drive. The Association contributed to the cost of printing pamphlets and making posters, and members gave time to the Detection Center. Another cooperative venture is a panel discussion on "The Role of Nutrition in the Community" to which leaders of interested groups will be invited to contribute. High school students will be invited to this meeting.

The *Greater New York Dietetic Association* on February 28 presented the annual Mary Swartz Rose Memorial Lecture at the New York Academy of Medicine. The speaker this year was Dr. Paul R. Cannon, Chairman, Department of Pathology, University of Chicago, whose topic was "Amino Acid Utilization in Relation to Protein Nutrition." New York City dietitians have contacted home economics clubs of the colleges and universities in the metropolitan area about vocational guidance. As a result, teams composed of a staff dietitian and a dietetic intern from local hospitals have been invited to talk at Hunter College, Brooklyn College and New York University. Public relations has also been promoted by supplying speakers at two other meetings: one for the Vocational Guidance Career group sponsored by the Women's Exposition of New York City, the other for the College Club Workshop.

Ohio Dietetic Association. The *Stark County Dietetic Association* in November heard a talk by a professor from Mt. Union College, Alliance, Ohio, on the Philippine Islands and Schistosoma japanicum, a disease prevalent in the islands. For its February meeting, the program was planned about the movie, "Protein," put out by E. R. Squibb & Sons. Also in February, the Stark County dietitians participated in a program sponsored by the Stark County Home Economics Association to give high school girls information about home economics occupations. The dietitians presented a pantomine to describe their work.

Dayton dietitians and home economists entertained high school girls at their joint meeting in February. Esther Latzke, Armour and Company, Chicago, spoke on the opportunities for women trained in home economics. Newspaper articles and radio interviews preceded the meeting to further acquaint the pub-

New Appointments, Veterans Administration

The following hospital appointments of dietitians have been announced:

Name	Position	Location
	Boston Area	
Harriet Fisher	Staff Dietitian	Brooklyn, N. Y.
Elizabeth Kearney	Staff Dietitian	Staten Island, N. Y.
Lillian Krikorian	Staff Dietitian	Framingham, Mass.
Eileen F. Riley	Staff Dietitian	West Roxbury, Mass.
	Washington D. C., Area	
Frances L. Halbing	Staff Dietitian	Lebanon, Pa.
Clara Mae Hall	Staff Dietitian	Richmond, Va.
Elizabeth A. Jackson	Staff Dietitian	Richmond, Va.
Yvonne M. Johnson	Staff Dietitian	Richmond, Va.
Barbara E. Parker	Staff Dietitian	Louisville, Ky.
Katherine B. Vlannes	Head Dietitian	Ft. Thomas, Ky.
	Atlantic Area	
Elizabeth W. Denaux	Staff Dietitian	Columbia, S. C.
Gwendolyn E. Dupree	Staff Dietitian	Dublin, Ga.
Joyce H. Gooch	Staff Dietitian	Bay Pines, Fla.
Cornelia Morris	Staff Dietitian	Tuskegee, Ala.
	St. Louis Area	
Alvina Beran	Staff Dietitian	Ft. Logan, Colo.
D'Ella Clark	Staff Dietitian	Topeka, Kans.
Lois A. Deslattes	Staff Dietitian	New Orleans, La.
Mary Jo Jedlicka	Staff Dietitian	McKinney, Tex.
	Ft. Snelling, Minnesota, Area	
Marion E. Bender	Staff Dietitian	Knoxville, Iowa
Grace M. Cables	Staff Dietitian	Downey, Ill.
Ann K. Clewell	Staff Dietitian	Hines, Ill.
Shirley McCarthy	Staff Dietitian	Hines, Ill.
Frances McShane	Staff Dietitian	Downey, Ill.
Christina R. Richart	Head Dietitian	Marion, Ill.
Adele Super	Staff Dietitian	Hines, Ill.
Doris E. Syverston	Staff Dietitian	Downey, Ill.
	San Francisco Area	
Evelyn L. Brown	Staff Dietitian	Van Nuys, Calif.
Mary Ann Cahoy	Staff Dietitian	Whipple, Ariz.
Sarah M. Carpenter	Staff Dietitian	Los Angeles, Calif.
Marian V. Dore	Staff Dietitian	American Lake, Wash.
Elma Emerson	Staff Dietitian	Oakland, Calif.

One of a Series Dedicated to the Nutritional Advances of the Food Industries
KEEPING FAITH WITH NATURE
MAKING A GOOD FOOD BETTER* . . . Nature provided corn with only small amounts of certain vitamins and other nutrients essential to human health. Degermed meal and grits unavoidably lose some of this precious nutritive value in milling. Fortunately these vital health-giving factors can now be restored (or increased in whole corn meal which is naturally low in niacin and iron) by the simple process of enrichment. By enriching corn, by "making a good food better," the millers help protect the health of a significant portion of our nation. Their achievement in making their products finer and nutritionally more beneficial is acclaimed by physicians and nutritionists. Corn millers are Keeping Faith With Nature.
*The title of a color film on the enrichment of corn meal and grits produced by Clemson Agricultural College. This film is widely recognized as an outstanding educational film on food and nutrition and is being shown by many health departments and schools.
Outstanding Nutritional Accomplishments
CORN MEAL Enriched
CORN MEAL Enriched
CORN GRITS Enriched
CORN GRITS Enriched
By enriching with thiamine, riboflavin, niacin, calcium and iron, millers of corn meal and grits help in the fight against deficiency diseases.
'ROCHE' Vitamins for Enrichment
VITAMIN DIVISION • HOFFMANN-LA ROCHE INC. • NUTLEY 10, NEW JERSEY

lic with the fields of home economics and dietetics. The Dayton Association's Public Relations Committee distributed their new pamphlet, "The Career with a Choice—Make Your Start in Home Economics." A Dayton dietitian, Mary Irene Hageman, participated in a recent career conference at a Dayton high school, speaking on dietetic careers and included some of her own experiences as a dietitian in Hawaii.

Oregon Dietetic Association. Salem was the scene of the mid-winter meeting of the Oregon Dietetic Association on February 11. At the morning session, George M. Shiffer, Director, Hospital and Facilities Section, Oregon State Board of Health, Portland, talked on "What Every Dietitian Should Know about the Hill-Burton Act." He was followed by William C. Crothers, M.D., of Salem, whose topic was "Newer Laboratory Techniques and Their Significance to the Dietitian." At the luncheon, Helen E. Walsh, immediate Past-President of A.D.A., represented the national Association and discussed Association activities.

In the afternoon a workshop on "Better Administration by the Dietary Department" was held. The first talk was by Lillian M. McDonald, Superintendent, Salem General Hospital, who spoke on "What an Administrator Expects from the Dietitian." This was followed by four discussions keyed to the theme of "What Every Dietitian Should Know about. . . ." Cost accounting was discussed by Dorothy Steen, Head Dietitian, Emanuel Hospital, Portland; good food standards by Sylvia Matsen, Director of Dormitories and Commons, Reed College, Portland; personnel management by Buena Council, Chief of Dietetic Service, VA Hospital, Portland; and care of equipment by Betty Bolton, Head Dietitian, Salem General Hospital.

The Oregon Dietetic Association is issuing a new bulletin which has been named "What's Cookin'."

Pennsylvania Dietetic Association. On February 14, the *Philadelphia Dietetic Association* heard a talk on "Geriatrics Nutrition" by Dr. Joseph T. Freeman, Associate in Medicine, Women's Medical College. He discussed the factors contributing to disease in the aged and recommended that nutritional treatment be applied according to the symptom rather than in general for "living longer in good health." Some of the factors to be considered are: anatomical and physical reserves; smoothness of muscle, gastric motility, absorption, transfer, and elimination, and fat accumulation. Dr. Freeman pointed out that in aging, reduction takes place in digestive secretions, in basal metabolism, and in chemical activity. Some recommendations can be made, especially for the distribution of calories.

The Hospital Purchasing Service of Pennsylvania met in Philadelphia on February 14. At this meeting, Julia Amerise, Chairman of the organization's Dietary Committee, presided at a round table discussion on joint purchasing which included the following topics: methods of testing quality foods, current prices offered by the Service, and plans for the 1950 "One-Day Food Institute." At the board meeting which followed, Miss Amerise was elected one of the two directors of the Service, which is a nonprofit organization for purchasing commodities for its members on a cost basis. It is sponsored by the Hospital Council of Philadelphia.

Another activity of an allied organization at which the Philadelphia Dietetic Association was represented was a Workshop on Hospital Careers held at Pennsylvania Hospital on February 16. Jean Beeman spoke on "Dietetics" to more than one hundred educators at the meeting.

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better...
in
MARKET FORGE
STEAM COOKERS
First choice with establishments that serve outstanding meals economically, Market Forge Steam Cookers can help *you* improve food and service. Tastier meals, faster cooking and savings in preparation costs are the profit advantages of cooking with these quality steam cookers.
They save time and labor by eliminating the handling of heavy cooking vessels. Waste and shrinkage costs are cut. There is never any burned food.
Above all, Market Forge Steam Cookers do the *kind of cooking that increases business.* By practically cooking to order, you can always serve meals while they are *fresh* and *hot.*
Insist on Market Forge Steam Cookers for cooking the delicious meals that result in greater customer satisfaction . . . for far less cost and labor in your kitchen.
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Write today for full details.
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Association Activities

A.D.A. Convention Plans. The 33d Annual Meeting of the Association will be held in Washington, D.C., October 16 through 20.

The meeting of the House of Delegates will be held on Monday, October 16. The program and exhibits will open officially on Tuesday, October 17. Joint headquarters for the convention will be at the Hotel Statler and Mayflower Hotel.

Day-time meetings will be held at the National Guard Armory, which also will be the scene of the commercial and educational exhibits. Evening meetings will be held at the Hotel Statler and Mayflower Hotel. Chairman of the 1950 convention is Anne Stewart Miller of Arlington, Virginia. Co-Chairman is Jean Crooks, Central Office, Veterans Administration, Washington, D.C.

The Virginia, Maryland, and Delaware Dietetic Associations have expressed a desire to cooperate in the convention work.

Representatives at State Meetings. The following representatives, not previously mentioned, attended state meetings in March:

Alta B. Atkinson, New Hampshire (Concord), March 9
Marguerite Pettee, Delaware (Wilmington), March 20
Margaret Ohlson, Wisconsin (Madison), March 24–25

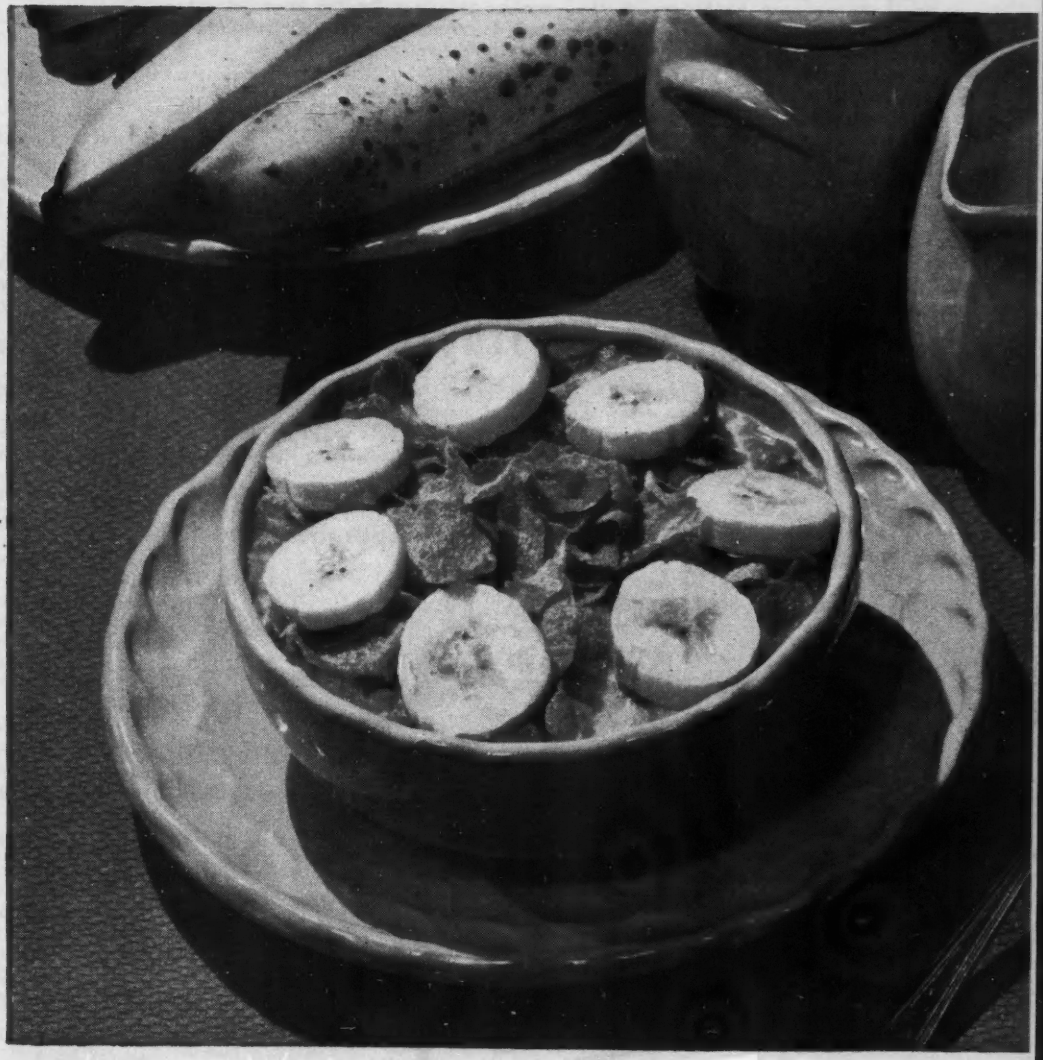
The following will attend state meetings as official representatives of A.D.A. during April:

Margaret Ross, Texas (Dallas), April 14–15
Marion Floyd, Virginia (Lexington), April 21–22
Fern Gleiser, Pennsylvania (Philadelphia), April 27–28
Elizabeth Perry, New York (Buffalo), April 27–29
Elizabeth Perry, Ohio (Cincinnati), April 28–29
Lillian Coover, Michigan (Detroit), April 28–29
Margaret Ross, Indiana (Indianapolis), April 28–29
E. Neige Todhunter, Alabama, April 29.

N.V.G.A. Convention. Gladys E. Hall represented the Association at the annual

CHIQUITA BANANA SAYS:

Breakfast, Lunch, Supper— CORN FLAKES and BANANAS



One medium-sized fully ripe banana contains approximately 5 level teaspoons of sugar

With ready-to-eat cereals use fully ripe bananas... yellow peel flecked with brown

Start the day with a breakfast bowl of extraordinary food value and flavor... easy to eat... easy to digest—

1 ounce (1 cup +) crispy corn flakes
4 ounces (½ cup) milk
1 teaspoon sugar
1 fully ripe banana

(an average serving)

UNITED FRUIT COMPANY, Pier 3, North River, N. Y. 6, N.

meeting in Atlantic City, March 27 to 30. In her address, which was part of the formal program, she described the vocational guidance program of A.D.A., using as illustrative material our new poster, "Dietetics . . . a Career for Better Living" and the new small, lightweight exhibit for loan to members. Members of the New Jersey Dietetic Association took charge of the A.D.A. booth.

A.D.A. Works with Foreign Students' Advisers. The Conference on International Educational Exchanges of the National Association of Foreign Student Advisers was held in Chicago, March 22 to 25. Mary Ellen Johnson, Assistant to the Educational Director, represented the Association at this meeting. This is the fourth year A.D.A. has participated in the work of this organization.

A.D.A. Loan Library Committee Meets. One of the most recently formed committees of the Association is that of the Loan Library Committee. Elizabeth H. Tuft is Chairman, working with A. Elizabeth Whitney and Ellen Thomsen. At a meeting on March 2, the Committee reviewed the present library facilities with Margaret Ross, Professional Activities Director. The Committee will make recommendations for the improvement and enlargement of the Association's loan library.

Phyllis Dawson Rowe. At a meeting of the Executive Board on February 23, it was voted that the following resolution be sent to the dietetic alumnae group of Johns Hopkins Hospital:

> The Executive Board of The American Dietetic Association expresses its debt to Phyllis Dawson Rowe for her distinctive contribution to the profession of dietetics, to the work of The American Dietetic Association, and to the training of young dietitians during her many years of professional service. Her untimely death is a tragic loss to her great number of professional associates and friends. Present board members who shared the experience of working with her on the Executive Board express their personal feeling of loss.

New Small Exhibit Ready. The outstanding request made last year by state and local associations active in vocational guidance was for a small, lightweight exhibit to use at career days and with vocational talks. The Educational Exhibits Committee and the A.D.A. staff have complied with this request by preparing six identical exhibits for loan to A.D.A. members. The exhibit consists of three panels with natural birch frames. Two 22 by 28 in. panels illustrate "Dietetics . . . a Career for Better Living" which is also the theme of our new poster. There are six sketches depicting the interesting positions which may be held by dietitians. Four more sketches illustrate such phases as good salaries, vacations, social activities, and preparation for homemaking. The third panel (which comes first when viewing the exhibit from left to right) is narrower than the other two. It contains the name and address of the Association and, as a special feature, has a place for the insertion of a card carrying the identification of the local or state group presenting the exhibit.

Copies of this exhibit are available for loan from the Association office. The only charges are those for shipping. We are expecting a busy schedule, so please make reservations as soon as possible.

A.D.A. Seal as Paperweight. The A.D.A. seal is now available to members in the form of an attractive bronze paperweight. Previously the seal has been made only in the form of pins and plaques. The paperweight, which is expected to be especially popular, is 3 in. in diameter, has a felt backing, and is priced at $4.75.

Orders for the paperweight should be sent to the A.D.A. office, with the checks made payable to L. G. Balfour Company. Orders not accompanied by check will be shipped c.o.d.

Sale of New Publications. Five hundred copies of the new poster, "Dietetics . . . a Career for Better Living" have been sold to the Massachusetts Dietetic Association for distribution throughout that state. How many other state and local groups will follow this example?

"Dietitians Today" is also being received well. Several groups have ordered 200 to 500 copies of this fact sheet on dietitians for distribution to employers and others.